

September/1959

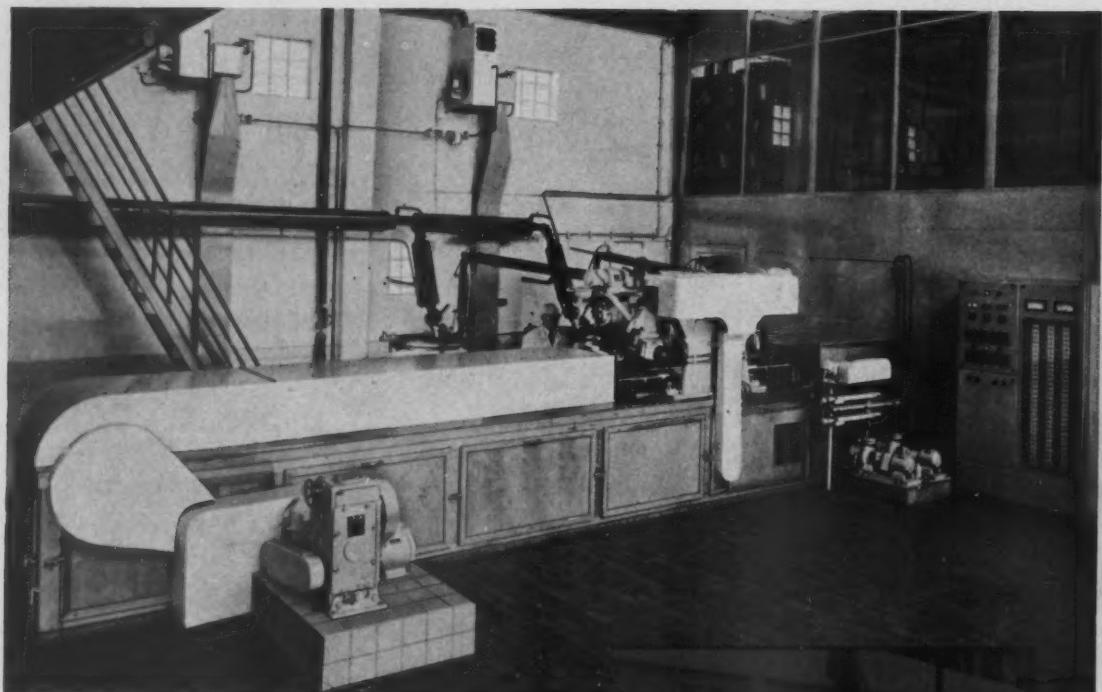
- Can there be a panacea against fat bloom?
- Selecting water-soluble gums
- Proteins in candy
- Week-end special:
Pralines

V.39 #9

Manufacturing Confectioner



specialized publication for confectionery manufacturers



JENSEN

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for solid chocolate goods and chocolate with centers of cream, nougat, caramel, toffee, etc.

Special types

for solid chocolate goods as bars, tablets, etc.
small goods as pastils, lentils, buds, cat tongues, napolitans, etc.

Couverture slabs,
chocolates with inserted centers as biscuits, cherries, peppermints, etc.
chocolates with deposited centers of cream, nougat, caramel, toffee, etc.
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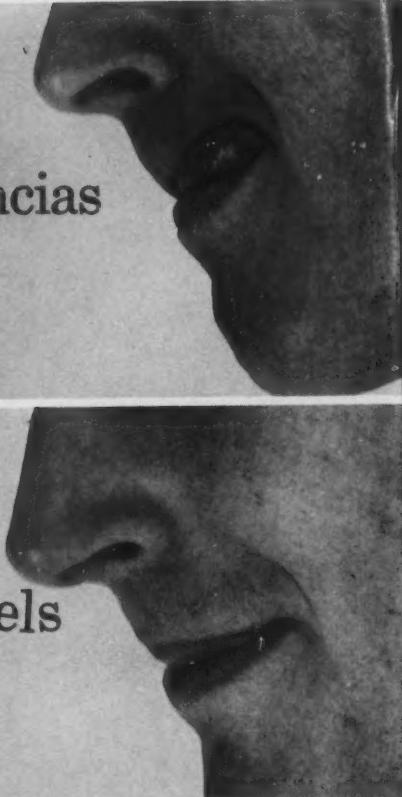
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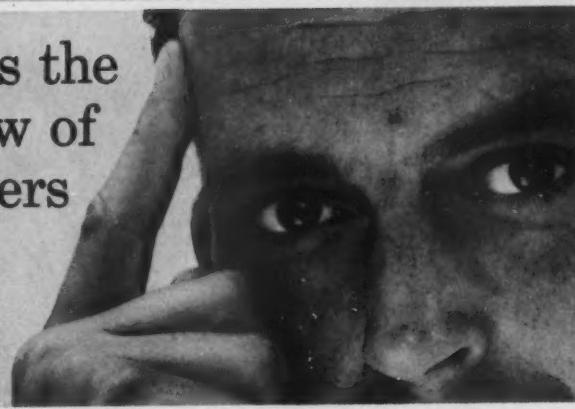
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candy business

Candy men speak on safety

Joseph Wohlfeil of Curtiss Candy Co., Burton May of Mars, Inc. and Al Casharet of Reed Candy Co. will share the spotlight at the Confectioners Division of the National Safety Council's Food and Beverage Congress on October 19th at the Sheraton Towers Hotel, Chicago. Wohlfeil will speak on "Employee Indoctrination Program" and Casharet will lead the discussion on that topic. Mr. May will be the discussion leader on "Supervision's Responsibility" but the speaker on that topic has not yet been announced.

Register replaces Tuttle at NCA

Greg Tuttle who for seven years has been director of field and promotion activities of the National Confectioners Association and who was executive assistant to Douglas Steinberg, NCA president, has resigned to accept the position of executive director of the Waxed Paper Institute in Chicago. Frank D. Register has left his post as assistant executive secretary of the National Candy Wholesalers Association to join the NCA in Mr. Tuttle's position.

Planters President dies

Frank A. English, president of Planters Nut & Chocolate Company, died suddenly on August 5th at Wilkes-Barre, Pennsylvania. Mr. English, 63, joined Planters 43 years ago and was named president of the company in 1956.

New director at CandyGram

George G. Creal, vice president of marketing of the Western Union Telegraph Company, has been elected to the board of directors of CandyGram.

New plant for Estee Candy

Estee Candy Co., Inc., manufacturers of dietetic candies, will begin operations this month in their new plant in New York City. The company, which has already redesigned the packaging of their dietetic confections, will launch an intensive advertising campaign aimed at the diet conscious public.

Package candies lead June rise

Packaged candies selling for under \$1 per pound rose over 10% from June last year, leading a total industry advance for the month of 6%. The first six months now show an increase of 8% over the same period of 1958.

Item	Estimated sales of current month and comparison		Estimated sales year to date	
	June 1959	from June 1958	June 1959	Percent change from 1958
	(\$1,000)	(\$1,000)	(\$1,000)	1958
Confectionery and competitive chocolate products, estimated total . . .				
BY KIND OF BUSINESS:	72,161	+6	*544,532	+8
Manufacturer-wholesalers	59,854	+7	*432,543	+8
Manufacturer-retailers ¹	5,231	+16	47,470	+20
Chocolate manufacturers	7,076	-7	64,519	+3
TOTAL ESTIMATED SALES OF MANUFACTURER-WHOLESAVERS BY DIVISION AND STATES				
New England	5,855	+5	47,466	+7
Middle Atlantic	17,313	+1	133,341	+11
N. Y. and N. J.	11,396	-2	77,751	+10
Pa.	5,917	+9	55,590	+13
East North Central	24,927	+12	167,094	+9
Ill.	22,838	+11	150,727	+8
Ohio and Ind.	1,342	+42	9,824	+25
Mich. and Wis.	747	+2	6,543	+1
West North Central	2,229	-11	15,728	-6
Minn., Kan., S. Dak., and Neb.	1,314	-17	9,988	-8
Iowa and Mo.	915	(2)	5,740	-2
South Atlantic	2,824	+24	19,014	+14
Md., D. of C. Va., W. Va. N. Car., and S. Car.	1,109	+24	7,672	+26
Ga. and Fla.	1,715	+25	11,342	+7
East South Central: Ky., Tenn., Ala., and Miss.	951	+6	7,455	+3
West South Central: Ark., La., Okla., and Tex.	1,279	+21	12,728	+2
Mountain: Ariz., Colo., Idaho, Mex., and Utah	686	+18	4,938	+22
Pacific	3,790	-3	*24,779	-4
Calif.	3,207	-5	20,371	-5
Wash. and Ore.	583	+11	4,408	()

^aRevised.

^bRetailers with two or more outlets.

^cLess than 0.5 percent change.

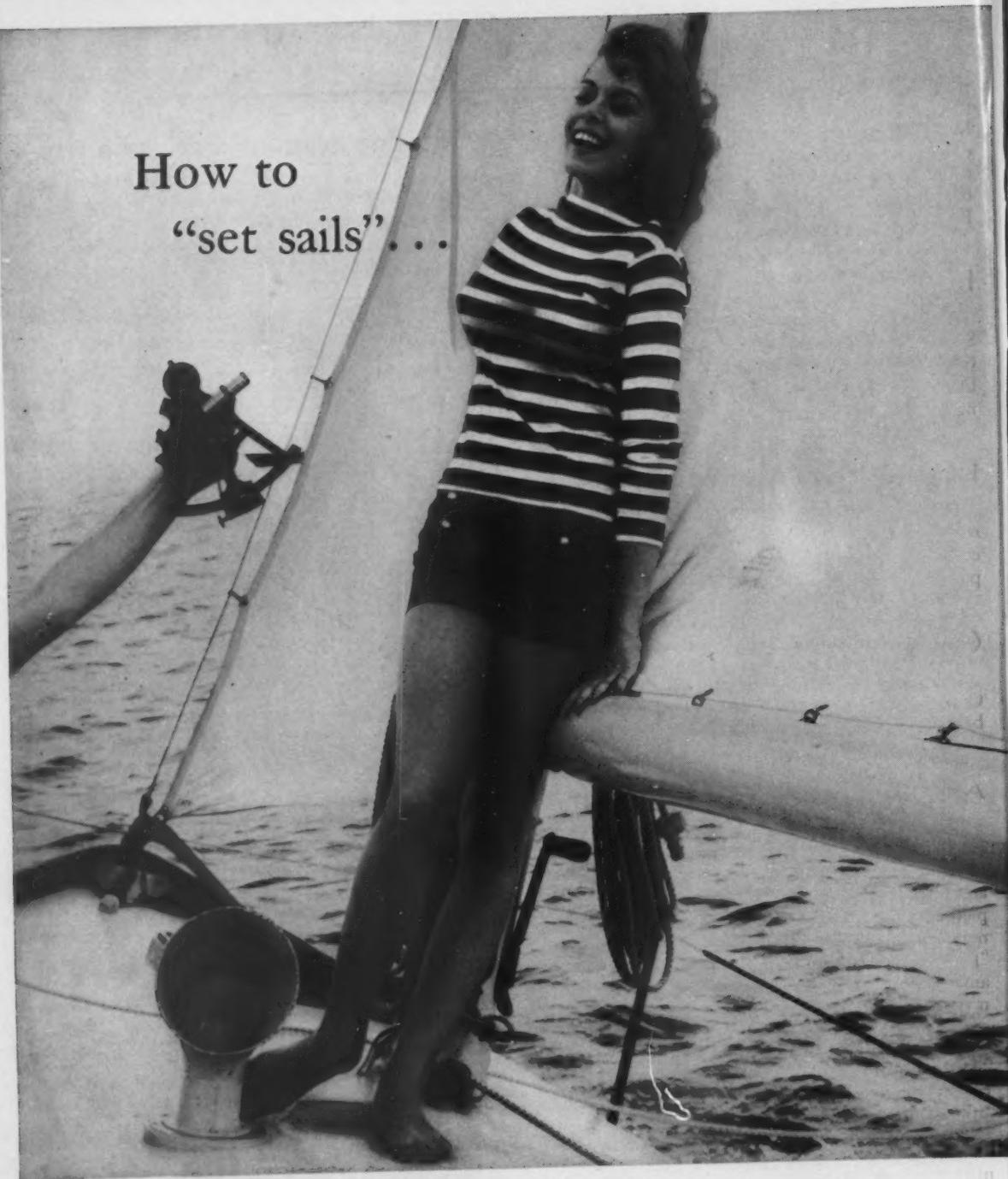
Type of product ¹	June 1959		First 6 months	
	Pounds (1,000)	Value (\$1,000)	Pounds (1,000)	Value (\$1,000)
TOTAL SALES OF SELECTED ESTABLISHMENTS				
Package goods made to retail at:	91,036	34,436	626,230	+2 255,895 +5
\$1.00 or more per lb.	1,280	1,297	19,273	-1 22,928 +4
\$5.00 to \$0.99 per lb.	7,326	4,047	56,057	+7 31,326 +13
Less than \$0.50 per lb.	16,392	4,383	101,259	+6 26,803 +10
Bar goods	43,325	17,088	298,826	-1 123,720 +2
Bulk goods ²	12,137	3,029	89,340	-1 24,426 +5
5¢ and 10¢ specialties	10,576	4,592	61,475	+9 26,692 +13

¹A selected group of large manufacturer-wholesalers and chocolate manufacturers report sales by type of product. Companies reporting such detail account for approximately half of the total dollar-sales of manufacturers.

²Includes penny goods

Data from monthly "Facts for Industry" of the U. S. Department of Commerce.

How to “set sails”...



Make the Man from Blumenthal the anchor man on your team of suppliers. You can be sure he will steer you right on the time to buy chocolate. And when it comes to quality of product, it's clear sailing when you

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6 — The Manufacturing Confectioner

NCA appointments

William T. Reed, president of Reed Candy Company has been appointed to the NCA's board of directors and Robert H. Reese, chairman of the board of H. B. Reese Candy Co. has been named chairman of the Peanut Advisory Committee. Both of these appointments were made to fill unexpired terms of office created by the resignation of Charles F. Scully.

Holzer sells Sylvan Sweets

J. A. Holzer has sold a majority interest in Sylvan Sweets Co., Easton, Pennsylvania, but will continue to serve the firm as a director. Mr. Holzer has announced plans to set up a brokerage firm in Easton.

Reymers leaves candy field

Reymer & Brothers, Inc., Pittsburgh has sold their retail outlets to Dimling Company and has discontinued the manufacture of all candies. The company has been making candy since 1846.

Curtiss VP in CIA

Richard F. Lindquist, vice president-finance, The Curtiss Candy Company, has been elected to membership in the Controllers Institute of America.

Ads set for lemon chips

Baker's Lemon flavor chips manufactured by the Jell-O Division of General Foods, will be backed up in their introduction by full color, half page ads in *This Week*, *Parade* and other Sunday supplements. The advertising campaign also includes network television commercials on such shows as "Day In Court", "I Love Lucy", "Beat the Clock" and "Whom Do You Trust?" Point-of-purchase materials include recipe pad leaflets, posters and shelf strips.

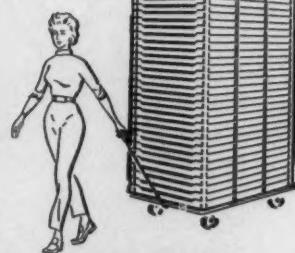
Heidelberger forms new company

Mark J. Heidelberger has formed a new candy manufacturing company specializing in custom made candies for department stores and a select clientele. The new firm, Mark J. Heidelberger Co., is headquartered at 1721 North Phillip St., Philadelphia. Production began on August 10th.

Cherry Chocolate Margettes

Mars, Inc. will introduce cherry chocolate Margettes in October giving the company three flavors in its chocolate Margettes line. They will be marketed in a variety of 10 cent roll package forms, window boxes and bulk.

End Sanitation Problems by Drying and Transporting Candy on ...



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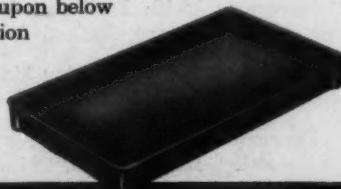
Trays



Toteline trays of reinforced molded fiber glass end your sanitation problems, reduce maintenance and lower materials handling costs. Here's how:

- Give you smooth, non-porous surfaces and rounded corners . . . there's no place for dirt to hide.
- Make cleaning easy . . . just dip in hot water or run through steam.
- Eliminate nails, splinters, peeling. Toteline trays retain no odors.
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- Available in different sizes and colors.
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Use the attached coupon below
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your materials
handling problems.



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Return the attached coupon with your letterhead for more information

Please tell me more about Toteline Products and how they solve materials handling problems.

I'm interested in the sanitary tray

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Name _____ Title _____

Company _____

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CALENDAR

- September 12; Carolina Confectionery Salesmen's Club, luncheon meeting, S & W Cafeteria, Charlotte, N.C.
- September 12; Kansas City Candy Club, luncheon meeting, Town House Hotel, Kansas City, Kansas.
- September 20-23; Philadelphia National Candy Show, Benjamin Franklin Hotel, Philadelphia, Pa.
- September 21; Confectionery Salesmen's Club of Philadelphia, 1:30 P.M. meeting, 2601 Parkway, Philadelphia, Pa.
- September 26; Southwestern Candy Salesmen's Club, luncheon meeting, Sammy's Oak Lawn Restaurant, Dallas, Texas.
- October 3-8; International Bakers' & Confectioners' Union, 45th exhibition, London, England.
- October 5; Denver Mile Hi Candy Club, breakfast meeting, 7:30 A.M., Denver Athletic Club, Denver, Colo.
- October 5; Retail Confectioners of Philadelphia, 6:30 P.M. meeting, Dairy Maid Restaurant, Germantown Ave., Philadelphia, Pa.
- October 9; St. Louis Candy Sales Association, 7:30 P.M. meeting, Congress Hotel, St. Louis, Mo.
- October 31; Groper Candy Club, luncheon meeting 12:30 P.M., Normandy Hotel, Minneapolis, Minn.
- October 31-November 3; National Automatic Merchandising Association, convention and exhibition, Navy Pier, Chicago, Ill.
- November 2-5; Air-Conditioning and Refrigeration Industry, 11th Exposition, Atlantic City, New Jersey.
- November 3-5; Canadian National Packaging Exposition, Toronto.
- November 8-12; National Association Concessionaires, convention and trade show, Hotel Sherman, Chicago, Ill.
- November 16-18; Packaging Institute, 21st national packaging forum, Statler-Hilton, New York City.
- November 17-20; Packaging Machinery Manufacturers Institute Show of 1959, New York Coliseum.
- December 10 & 11; WCSA, convention and annual meeting, LaSalle Hotel, Chicago.

1960

- January 17-21; Philadelphia National Candy Show, Benjamin Franklin Hotel, Philadelphia, Pa.
- January 24-26; NCWA, Western candy show and convention, Mark Hopkins Hotel, San Francisco, Calif.
- March 9-11; Western Candy Conference, Claremont Hotel, Berkeley, Calif.
- April 27-29; PMCA, 14th annual production conference, Franklin & Marshall College, Lancaster, Pa.
- April 20-27; Interpack, 2nd international packaging exhibition, Dusseldorf, Germany.

June 5-9; National Confectioners Association, 77th annual convention, Philadelphia, Pennsylvania.

June 9-12; New York Candy Club & Metropolitan Candy Brokers Assn., 5th annual candy show, Trade Show Building, New York City.

July 30-August 4; NCWA, 1960 convention, Sheraton-Park Hotel, Washington, D.C.

NEWSMAKERS

Chas. Pfizer & Co. has elected J. Philip Smith a vice president and named him head of Pfizer Laboratories. Paul E. Weber will succeed Smith as general manager of the chemical sales division and Malcolm K. Nielsen has been appointed sales manager of this division.

The Philadelphia office of Fritzsche Brothers, Inc. has moved from downtown Philadelphia to 7 Wynnewood Road, Wynnewood, Pa.

Shulton, Inc. has announced that Robert V. Knapp has been appointed a sales representative for their Fine Chemicals Division. Mr. Knapp will cover the New York metropolitan area and New England.

Riegel Paper Corporation has appointed Norval W. Postweiler manager of packaging materials sales succeeding Charles Schaehrer who was recently elected vice-president and was made sales manager of the specialty products division.

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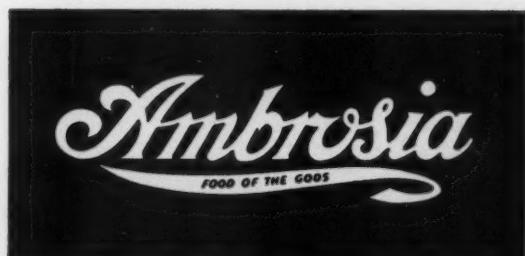


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Coatings are your assurance of the
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Sweet Swingers

The season had its usual quota of golf outings, too numerous to mention, even if we knew of them all. These shots are from four of them, and might indicate that one reason for the summer slump in candy sales is that the candymakers are too busy to be bothered to make it.

Production Club Clinton Outing



Ready to go at the Clinton Corn Processing outing. Vic Triggs, Al Allured, Al Anton and Bill Dils.

PMCA annual meet at Galen Hall



Under the welcome sign at the PMCA 48th annual meeting at Galen Hall, Pennsylvania, Ted and Mrs. Zolper, Howard Gage, and Frank Wolf.



Pickett, Heidelberger, Lee and Jackson, Galen Hall foursome.



Van Zyl, Bendixon, Miller and Junge make a foursome at Clinton.



Calm in the midst of much activity are Wally Meyer, George Hearth and Dick Cooling at Clinton, Iowa.



Looking things over at Galen Hall. Bill Sparks, Charles Hopkins and Bob Regan.

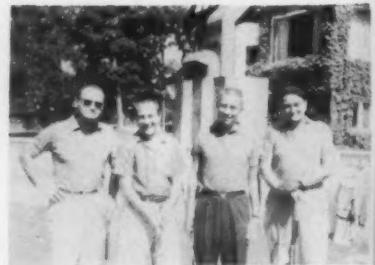


At the PMCA get-together at Galen Hall all set to go are Pischl, Spaeth, Cottrell and Shunk.

Candy Production Club



The golf committee responsible for the success of the Chicago Candy Production Club Golf Outing on August 19th at the Elmhurst, Illinois Country Club. Bud Enzer, Mac Breaker, Duane Tiger, Frank Puch.



Candy Production Club foursome Kaplan, Shankman, Stein & Johannet.

Chicago Candy Club



Doing it the easy way at the Chicago Candy Club outing are Al Sisco and Duane Tiger.



Also seen resting at the Chicago Candy Club golf outing Waller, Stankus, Chaplin, and Eaton.

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National Certified Food Colors capture the full beauty of natural fruits at their very peak of flavor. With unerring consistency, they reproduce those appetizing colors time after time... "telegraphing" the flavor before you actually taste it.

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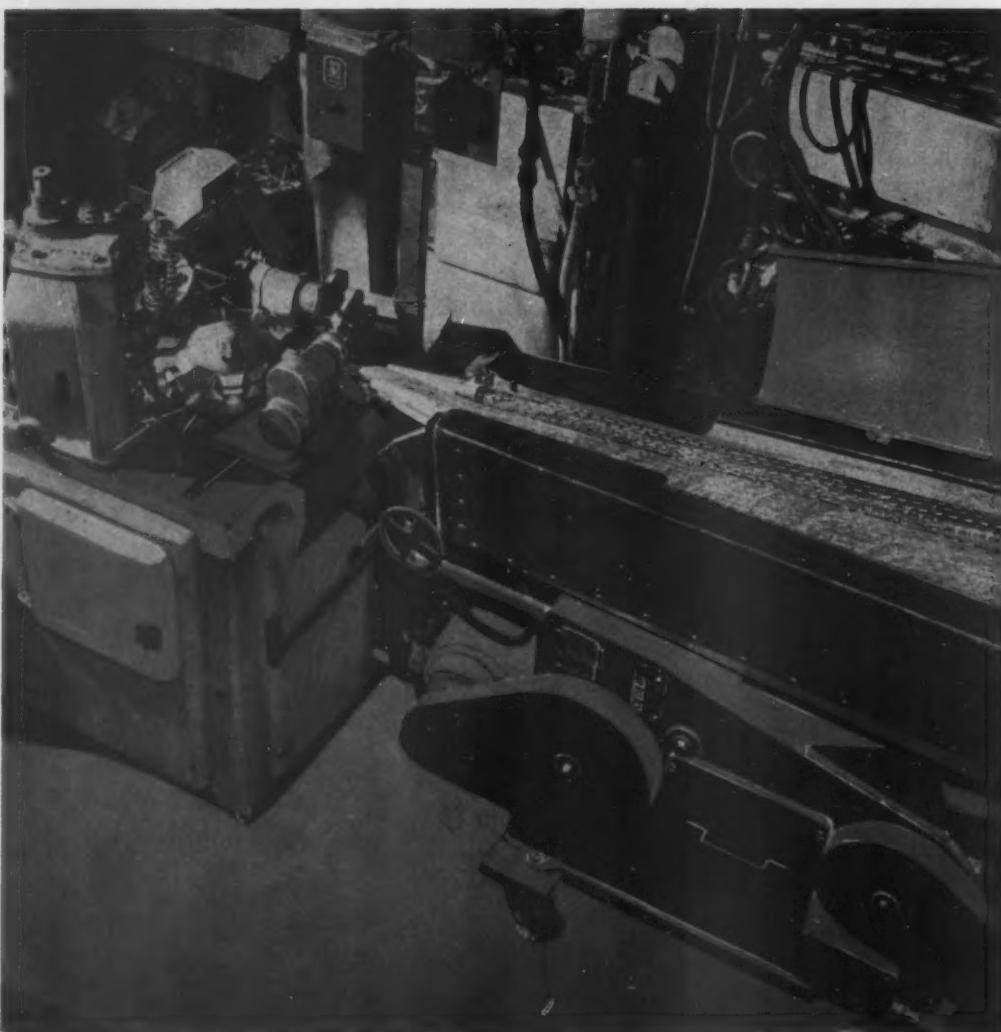
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September 1959

Volume XXXIX—Number 9

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The Candy Manufacturing Center of the World



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Proteins in candy

Three major factors of processing are analyzed to determine their
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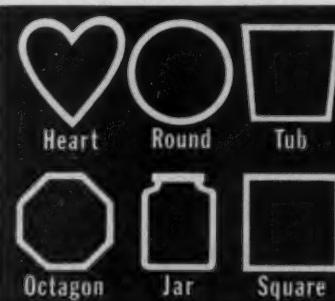
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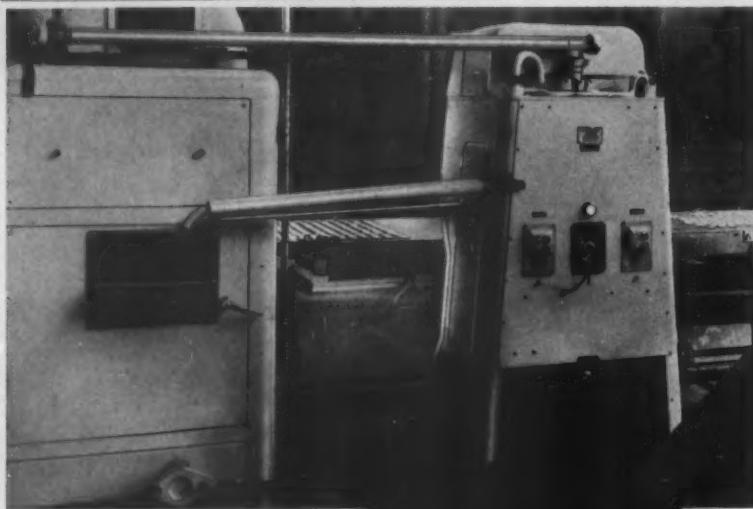
The sweet and the sour

An event of some potential importance was the recent formation of the Candy Salesmen's Council of America. Representatives of the National Confectionery Salesmen's



Candy Salesmen's Council of America. Seated: Rufus Gillett, Charles Meek, Abe Josephson, Bill Stronge and Hy Falkowitz. Standing: Lou Spector, Stanley Marks, Warren Durgin and John Gallagher.

Association and the Western Confectionery Salesmen's Association met to form the organization. The Council will not affect the opera-



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tions of the individual associations but will work to establish a united national voice for the candy salesmen of America. Other objectives of the Council are to encourage greater understanding between the salesmen and other branches of the confectionery industry and to cooperate with all organized efforts for the increased sale and consumption of quality confectionery products.

The wild "goings on" in Cuba, regarding political and economic changes of a violent nature, have so far not been of critical importance as far as the sugar supply situation is concerned. It has, however, made a mess of all types of import and export business of that country. And further, Cuba is getting an awfully bad "press" in this country.

In the long range picture, the critical time for our relations with Cuba lies next year, when the Sugar Act comes up for renewal. If the Congress is as critical of events in that country then as now, it is quite likely that there will be major re-arrangement of our sugar quotas, generally in the direction of Puerto Rico, Hawaii and Phillipines, as well as the Mainland areas.

The present Sugar Act, and its predecessors very definitely gave Cuba a "most favored nation" status, with the great majority of "off shore" raw sugar supplies. Now, with friendship waning between that country and ours, other areas, more friendly to us and in sympathy with our economic system, are more than anxious to accept as much of the Cuban quota as they can get.

So far, there is nothing in this development that indicates that sugar supplies will be anything other than adequate during this transition period. However, it is certainly a condition well worth watching.

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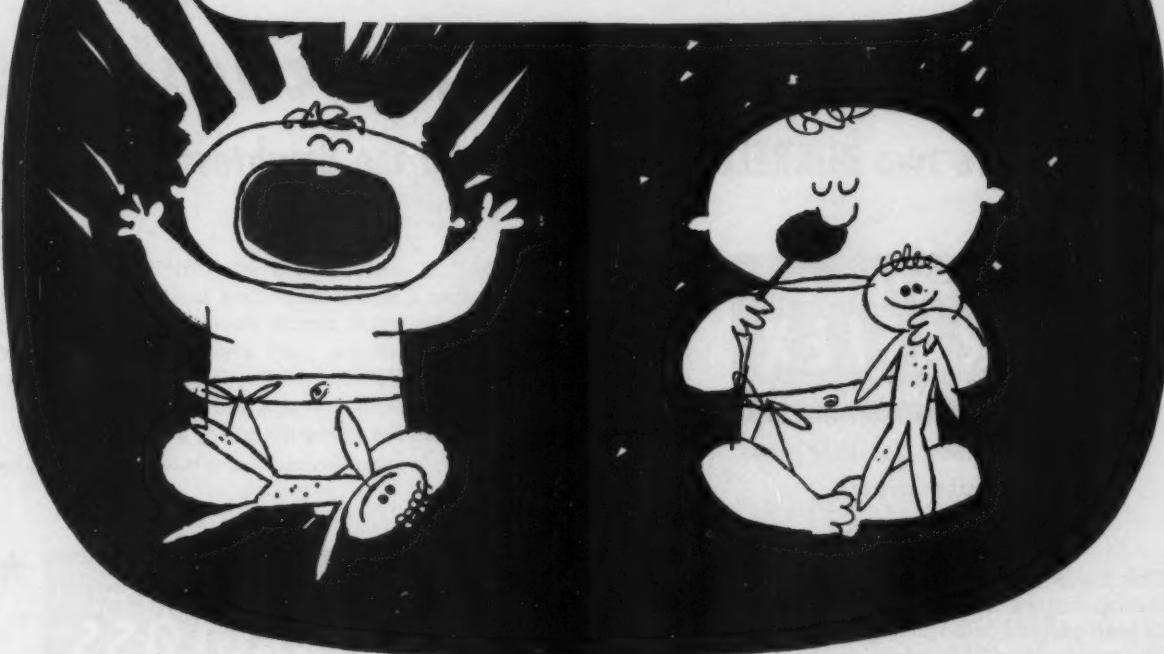
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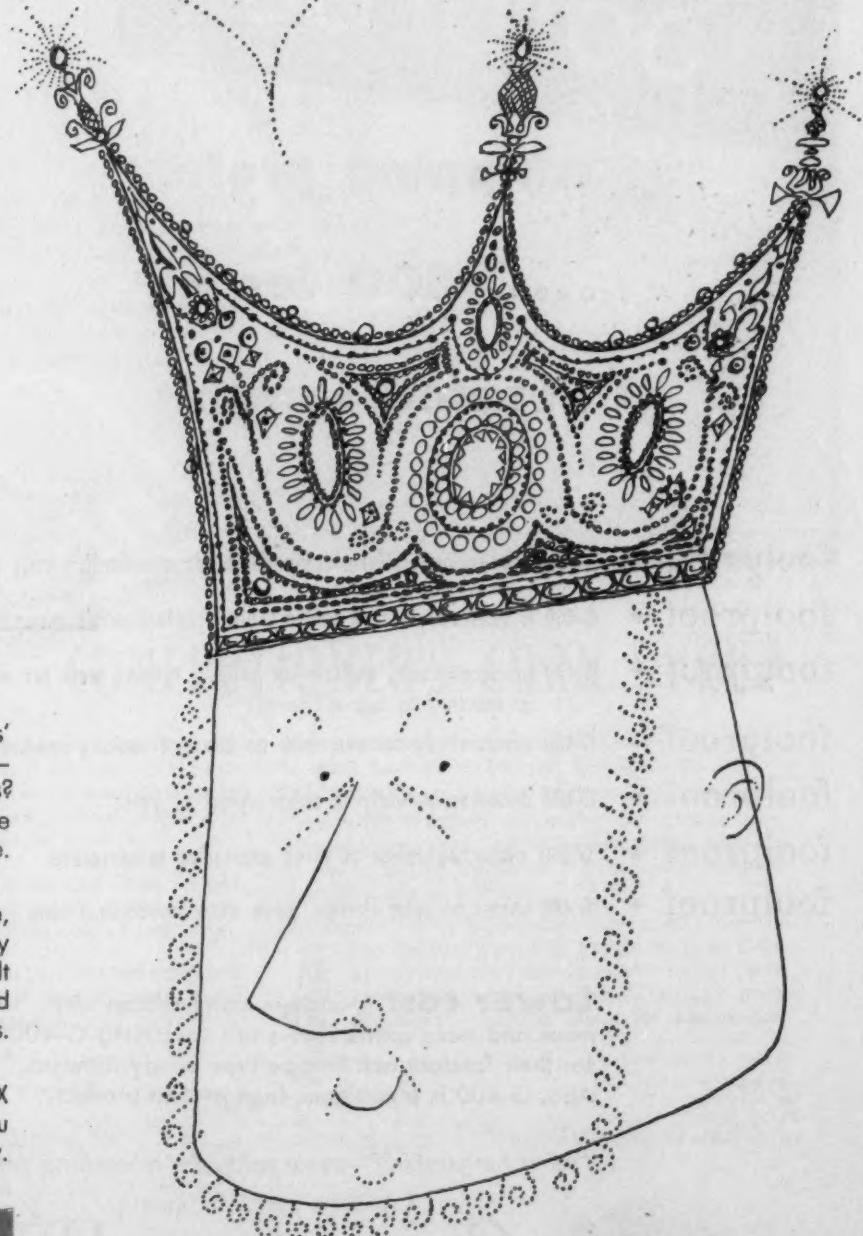
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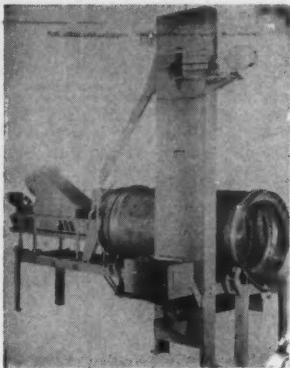
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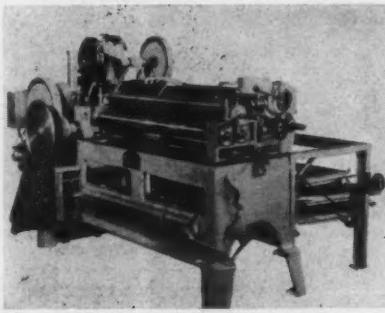
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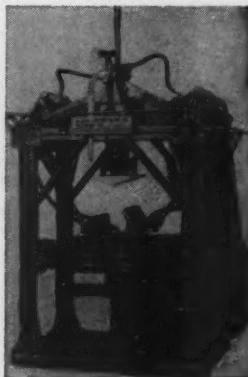
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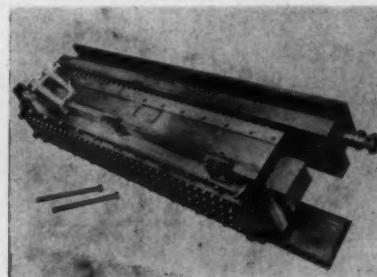
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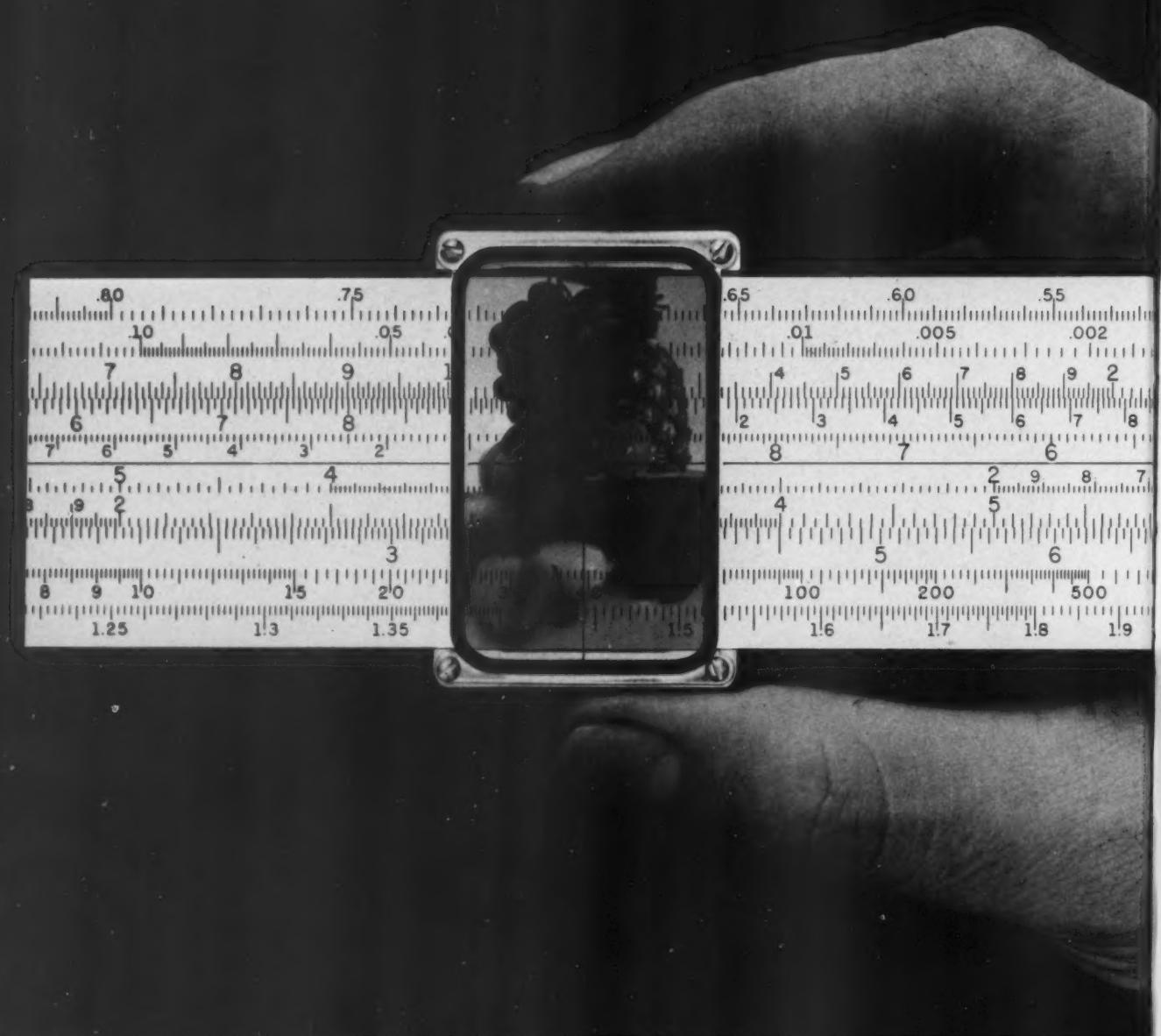
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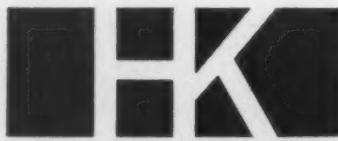
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the Manufacturing Confectioner

September, 1959

Volume XXXIX—Number 9

Can there be a panacea against fat bloom?

W

e all know that chocolate started its popularity as a drink. Sugar was added and the mass smoothed and moulded, and eating chocolate resulted. Some say that these blocks were prepared for home brewing of the drink and this sounds logical. In any case, it was at that time that fat bloom appeared and it has remained a curse of the industry down to the present day.

Some few workmen learned to handle the material in a way which prevented bloom for weeks or months. They did not know why this was so nor could they give a definite rule for working. They just kept stirring and sticking some against their lips and letting it drip back into the mass again. Not an appetizing sight until you grew used to it.

Robert Whymper was the first man on record to have given a scientific basis to chocolate tempering and to have recorded what happened during the process and how to exactly duplicate results time after time. He published these facts for the industry and put stability into the making and handling of chocolate.

No matter how perfectly chocolate may be tempered, too much heat, too many considerable changes in storage temperature, or even prolonged storage at good temperatures will result in loss of gloss and eventual bloom. There are reasons for this.

Reports on bloom study are constantly appearing and much in them is of great interest. Rec-

ommendations range from the addition of low melting point dairy butter to high melting hydrogenated vegetable fat. From changing the sugars to adding prohibited stabilizers. All sorts of other suggestions go along with these.

In England we used coating treated with a slightly modified dairy butter addition, coated marzipan and peanut butter filled hard candy with it and shipped the lot through the Suez and the Red Sea to Australia. The boxes were opened at Sydney and found O.K. and shipped back to London. Examination showed that while the coat-

Editor's Note: This manuscript was written by Mr. Clay just a few weeks before he died, July 25th.

A native of Elizabeth, N. J., Mr. Clay was first associated with the confectionery industry when he joined the Novelty Candy Co., Jersey City, N. J., a subsidiary of the Corn Products Refining Co., in 1912 as a file clerk. He quickly rose to the position of superintendent.

In 1919 he led the Beech-Nut Company into the candy field, engineering and operating the first modern marshmallow plants at Canajoharie and Brooklyn, N. Y. In 1924 Mr. Clay went to England to teach American candy production techniques.

In 1929 he formed his own technical consulting firm and travelled widely throughout the British Isles and Europe. He was regarded as the outstanding candy and chocolate authority.

During the World War II years, Mr. Clay remained in England, serving as an expert on occupied nations food supplies for the British Government.

At the end of the War he returned to the United States and in 1947 became technical director of Stephen F. Whitman, Philadelphia. He retired from this firm in 1955.

The author of numerous articles on confectionery manufacture, Mr. Clay also authored the "How and Why of Candy Making" with James King and James Booker under the pseudonym, Matthew Berman.

ing had softened enough to lose most of its markings and to have run into the flutings of the cups, it still had a gloss and no bloom. The surface throughout had been smeary and subject to finger marks.

We tried hardened fat and even slightly hydrogenated cocoa-butter with no consistent success. Illippi butter helped somewhat.

The German method of substituting dextrose for part of the sucrose very certainly lengthened shelf life markedly but sweetness was sacrificed and a certain sensation of cold in the mouth accompanied any considerable use.

Evidently much effort is being used in trying to find a panacea against fat bloom but when a careful census of possible causes is taken one wonders if such a thing exists; particularly against delayed bloom which appears after two to six months or a year.

There are many less recognized causes of bloom which may exist in one lot of beans and not in another. Beans are a natural product and therefore subject to variation in composition from changes in seasons and locations of growth. They may enter the mix from various other directions or develop in processing or storage.

While dextrose delays bloom, levulose, sorbose or probably any of the ketose sugars, added to chocolate in as little as 1%, turned the chocolate snow white in as little as two months. Glycerol did approximately the same.

At this point it is well to say that these special additions were tested by making up ten batches, laboratory size, of each. Each was a separate mixing with equivalent chocolate and exact percentages of the addition. Each was tempered and moulded in exactly the same way and stored at a variation of from 68° to 70°F.

Several apparently foreign substances will cause delayed bloom. How many will probably never be known for it would seem an endless and rather useless task to determine them by hit and miss means or to determine their effect on chocolate. We will mention a few here to carry on the sequence of this discussion. Careful study will show that several of these substances might occur naturally in chocolate or be formed in it at some stage of its processing or storage.

Choline is a decomposition product of lecithin and when added as .07% of the total fat caused completely white bloom on our test samples in between three and six months. Steroles ex Bile using .0025 of the total fats resulted in complete bloom in three months or less. Furfural in minute quantities was fatal in a very short but uncertain time.

Just how these different substances effect chocolate to cause bloom is not well understood and a very thorough study would have to be made before a cure could be discovered, were it worth while doing. Actually it would seem simpler to risk or guard against their very occasional entry.

There is a physical cause of delayed bloom which may well account for a high percentage of its occurrence. At the risk of being tiresome let's

look carefully into it. It will involve several paragraphs.

In England hollow eggs are very popular and the common practice used in moulding them is to employ double moulds. The chocolate is heated to 120°F. and then cooled to moulding temperature without the customary drop to a degree where a grain is established. At moulding temperature a very small amount of liquid grained chocolate is added and mixed carefully and quickly through. The resulting free flowing seeded chocolate is run into both sides of the mould, the mould closed and put into a spinner which continuously turns the mould into every possible position. The constant movement of the chocolate tempers it and spreads it evenly over the mould. When set the mould is passed through a cooling tunnel to harden.

When the mould is opened in a cool dry room a crackling is heard and a paper pennant will flutter out toward it. If the room is dark sparks are often seen playing over the chocolate surface. If the chocolate is too thin it will crack when the mould is opened and these cracks will show a pattern very similar to that formed when the glass layer of a Lyden jar is broken by too high a charge.

All this detail is given in condensed form but it shows that the crystallization of the fat establishes a static charge in the chocolate.

A German scientist published a paper on these static charges at about the time we were conducting experiments in England but unfortunately this has been lost. The author's findings concurred closely with ours.

As the electric charge develops, cavities of microscopic size are formed in the chocolate and held open by the charge distributing itself over the inner surfaces. Slow discharge into the air neutralizes the cavities and they slowly collapse causing a disturbance in the chocolate structure; fat is forced to the surface to form bloom.

We know that each of the foregoing additions and structural changes has consistently caused delayed bloom on chocolate. The worth while question is, "Can a panacea against all be found?"

The more thoroughly chocolate is tempered the less crystallization takes place in its final set, the less cavitation occurs to cause final structural disturbance. This might well account for the advantages resulting from long cycle tempering.

As an enzyme treated cream center softens, the sucrose hydrolyzes and the concentration of the liquid factor rises. Eventually it becomes supersaturated with dextrose and refuses to take up any more. It might easily be that levulose syrup passes into the coating.

There may be conditions under which some small part of the lecithin decomposes to free choline.

Some invertase preparations, vanilla and color pastes are made with glycerol. One of these might readily enter the chocolate intentionally or by self distribution.

When we think all of these possibilities over, could there be a panacea for the lot?

Proteins in candy

P

roteins in candy is certainly a subject that has not been overworked. It seems that these materials are only rarely discussed in talks on candy technology. Perhaps this is because proteins constitute a relatively small percentage in the total candy composition. Proteins are important, though, for a number of reasons and one does not need to apologize for taking time to discuss them.

In candy, proteins serve three purposes. These are—first—to produce a flavor—milk does this in fudge, for example. Secondly, proteins serve functionally to influence texture. Thirdly—proteins function in candy to produce aeration, or the introduction of microscopically small air cells in the candy. Egg, vegetable and gelatin proteins, that produce this aeration, also serve to stabilize the dispersed air so that the cells remain small and do not coalesce to form large bubbles.

In addition to the aforementioned functions of proteins in candy the nutritional aspect should not be overlooked. All proteins that are used in candy, regardless of the reason for using, do contribute to the nutritional value of the piece. As you know, proteins are combinations of amino acids, of which ten are essential for life. Thus any protein, regardless of the amount used, contributes a definite nutritional value to the diet and is not only good food but is supplying a percentage of the essential food components necessary for life. Two ounces of nougat containing 2% whipping protein supplies approximately 4% of our daily minimum amino acid requirements. One ounce of peanuts will supply about 20% of the minimum requirement.

Three proteins that serve as whipping agents in confectionery products are the protein of the white of egg, a vegetable protein, and gelatin. In order to obtain a particular functional product most suitable for candy work the proteins must be processed in various ways. The one requiring least modification is egg. Undoubtedly the first use of egg white was in the natural state without drying or freezing. There certainly is no reason to believe that the white was dried prior to use

BY KEN GUNTHER
President, Gunther Products, Inc.

nor that it was modified chemically as is frequently done today. However, in order to eliminate the immediate danger of spoilage, egg whites are now either frozen or dried.

In the case of vegetable proteins and with gelatin the original raw material must be subjected to chemical modification before a product is obtainable that has the characteristics that are needed. In order to obtain what we know as gelatin, bones or skin must be subjected to acid or alkaline hydrolysis before a suitable product can result. Vegetable proteins, likewise, must be isolated and then modified by specific enzymes in order to develop the desirable whipping characteristics of the protein.

Unlike other proteins that are processed for multi-purpose uses, the vegetable protein whipping agents for the candy trade are designed and manufactured exclusively for candy use. Every step in the processing is carefully controlled by physical and chemical tests to insure that the prescribed properties are in every lot of finished product. Also, each production lot of whipping agent is given a very thorough analysis to insure that all physical and chemical properties fall well within the standards established. The most important test is the actual whipping of the product in typical candy formulations with the same beaters as used in candy plants. The behavior of the product is noted in every step and the finished whipped syrup is tested for specific gravity, texture, color and consistency. A portion of the whip is stored for 24 hours at room temperature and is re-examined for specific gravity, color, texture, and consistency. We believe that the best test for a functional product is that one which is made under the same conditions as are found in the candy plant.

We are concerned here with the matter of us-

This paper was presented before the Chicago Section of the American Association of Candy Technologists.

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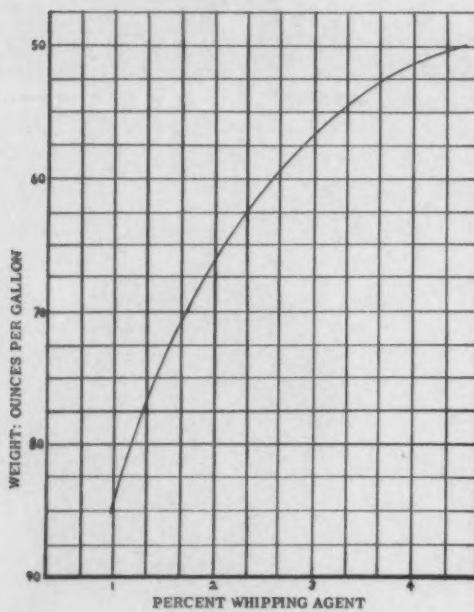
James V. Gardner
Greer's Division Manager for
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Figure 1: Percent whipping agent vs. whip volume (vertical beater)



ing vegetable proteins to their best advantage in the various candy making applications. To do this it must be understood that the prime function of a whipping agent is to allow air cells to become incorporated in a syrup or a syrup-sugar mixture when it is mechanically agitated with air. Also, in addition to making it possible to incorporate air into a candy formulation, the whipping agent must perform the function of retaining the air in tiny divided cells, and, make the air-syrup mixture of such a consistency that it will retain its shape upon cooling and produce a desirable texture which may be described as short or non-stringy. In some types of candy, such as chewy nougat, all three of these functions are of equal importance and because of this a chewy nougat formulation is a more thorough test of a whipping agent than is a fully grained piece of candy such as aerated fudge. In the case of the nougat it must be (1) aerated, (2) must have the air finely divided to produce a smooth white appearance, and (3) the texture of the candy must be such that when eaten it bites short and does not display taffy like characteristics. In the case of fudge we have a different case because here the degree of aeration is less, and secondly, when the fudge cools sugar crystals rapidly develop which sets the product to a crystalline form which prevents air cell breakdown and cold-flow. Likewise, the crystalline structure produces a shortness which eliminates the need for the whipping agent to function in that respect.

Obviously, it is not possible in the space of this article to discuss many of the great number of factors that come into play when one employs a whipping agent in making one of the many different types of aerated candy that are produced today. So, to keep the discussion of short duration

we will confine the subject to several factors that have a direct influence on the amount of air that is incorporated in a syrup during the beating of a frappe or mazetta using conventional beaters used in candy manufacture.

In most candy plants there is produced one or more of the aerated syrups which are known as mazetta, nougat cream, frappe or fluff batch. Most likely each of you have one or more of these products being made every day in your own plant. And, if your plant is typical there has been relatively little experimentation done to determine if you are obtaining the best degree of aeration possible with the amount of whipping agent that you are using.

Our laboratory is equipped with a number of the units used in candymaking, including syrup cookers and beaters of the horizontal, or marshmallow type, as well as vertical beaters which also are known as planetary machines. With a supply of sugar, syrups, whipping agents and man power one can develop a considerable amount of information on what factors effect whips in the process of candy making.

Some of the most pertinent factors that play a part in the beating operation are—

- (1) The whipping agent
- (2) The type of syrup used
- (3) The moisture content of the batch

(1) The whipping agent

Here we must remember that both the type of whipping agent and the amount used are of importance. Figure 1 is a series of standard whips in a vertical type beater wherein the only variable was the amount of whipping agent and the water used to disperse the whipping agent. When making a standard whip of this sort the procedure is as follows.

In a 12 quart beater bowl we place 4 pounds of cold corn syrup. To this is added the desired amount of whipping agent which has been dispersed in twice its weight of water. Thus in the case of using 2% whipping agent we take 91 grams of the whipping agent and slurry it in 182 grams of water. This dispersion is then added to the cold corn syrup. It is then beat on high speed until maximum volume is obtained. This will vary somewhat with the particular whipping agent used and in each case the whip must be observed as it progresses in order to determine when there is no further increase in volume with continued beating. In the case of the vegetable protein it must be remembered that it does not beat down as does egg albumen so it is always desirable when whipping it to continue the beating until there is no observable increase in volume. In many cases, this may take longer than with egg albumen but the extra time is worthwhile since better volume will result.

While the cold syrup is being whipped in the bowl we cook 4 pounds of corn syrup and two pounds of sucrose to 240 degrees F. and then add this over a 60 second period, to the whipped

cold portion while the beater is running at low speed. The machine is then shifted into high and beating is continued for 2 minutes. The beater is then stopped and the whipped syrup is allowed to rest for 60 seconds and then the degree of aeration is measured by filling a carefully calibrated container and getting its weight. From this the weight of the whipped syrup in ounces per gallon is calculated.

By carefully controlling every phase of every step in this procedure it is possible to duplicate the whip of a given whipping agent within plus or minus 1/2 ounce per gallon. To obtain this accuracy it is requisite that both the sugar and corn syrup be of uniform whip quality and that the machine runs at constant speed. The temperature of the ingredients as well as that of the mixer itself must also be held within close limits.

It can be seen from the figure 1, that as the whipping agent percentage is increased the whip volume increases from 85 ounces per gallon at 1% whipping agent to about 56 ounces per gallon when 3% whipping agent is used.

(2) The syrup, or syrup combination, that is being whipped

It is a fact that the syrup used in making a whip is of utmost importance. One finds a very large number of combinations of syrups of different types used in making whips. Practically all of them will aerate with reasonably good results but some syrups are much more easily aerated than others. And, it should be mentioned there is a considerable variation in corn syrups in regard to their relative ability to be whipped. In some cases we have found that one corn syrup may vary as much as 10%, between lots, in its ability to aerate under carefully controlled laboratory beating tests using beaters that are typical in candy plants today.

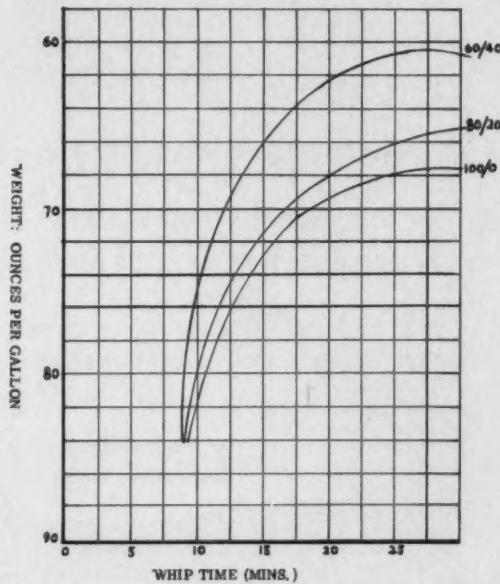
This variation in whipping characteristic is not related to moisture content or dextrose equivalent and what causes it we don't know.

In general, one might say that the lower the viscosity of a syrup the better the relative whip when compared to other syrups. If one were to rate the various syrups for ease of whipping we would put them in this descending order—invert syrup, followed by sucrose syrup, then enzyme converted corn syrup, and acid converted corn syrup. It is a fact that practically any syrup will whip but there is considerable difference between types of syrups as figure 2 will illustrate. In this figure we have plotted the whip volumes of corn syrup, and mixtures of corn syrup and sucrose involving the use of a marshmallow type beater.

In these tests, involving the use of the papoose beater the procedure was as follows—

One half of the weight of corn syrup used, which is normally twelve pounds, is placed in the beater with the percentage of whipping agent employed dispersed in twice its weight of water. These two are mixed together but not whipped. The remainder of the corn syrup, and sugar if

Figure 2: Effect of corn syrup/sucrose ratio on whip volume (horizontal beater)



used, are cooked to 240 degrees and poured in on the mixture of whipping agent and cold syrup. The beater is then closed and beating is started and continued for a total elapsed time of 25 minutes. When using the horizontal beater in this way we have found it necessary to preheat it to a specific temperature in order to obtain uniform results. When the beater is at room temperature at the start of a whip the degree of aeration is considerably less than when the entire beater, including the agitator shaft, are heated to, say 140 degrees F. Our experimental beater is driven by a chain drive to insure constant agitator speed and the machine is equipped with a small draw-off valve at the bottom which allows withdrawing of samples at various intervals without stopping the beating action. By preheating the beater to a set temperature, and by running at constant speed and with every phase of the operation standardized we are able to obtain consistently uniform results.

You will note in figure 2 that the lower curve is 100% corn syrup whipped with 2% vegetable whipping protein dispersed in twice its weight of water. The whip volume in 15 minutes was approximately 73 ounces per gallon and at the end of 25 minutes was about 68 ounces per gallon.

The middle curve indicates the improved results when 20% of the corn syrup in the previous whip was replaced with an equal weight of sucrose, to give us an 80-20 ratio of corn syrup to sugar. At 15 minutes whipping time our volume had increased but one ounce per gallon but at the full whipping period we obtained an increase of approximately 2 ounces per gallon.

Now let us see what happened when 40% of the corn syrup was replaced with sucrose. Here it can be seen that in 15 minutes whipping time the syrup density was about 66 ounces per gallon

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and at the full period we had about 61 ounces per gallon. This is, according to our estimation, approximately 20% improvement over the all corn syrup batch.

Now, what does this mean to you as a candy technician? It means this. If you are now whipping a straight corn syrup for use in a candy which contains at least a reasonable amount of sucrose you probably can make your whipping agent dollar go up to 20% further by rearranging your procedure to put more of the sucrose of the piece into the whip batch than you now have. For instance, if you are making a fudge piece with mazetta, it is very simple to put more sugar in place of corn syrup in the mazetta. The corn syrup that is replaced is added to the cooked batch in place of the extra sugar in the mazetta. By doing this you will obtain 10% more aeration with the same amount of whipping agent. Or, one can obtain the usual aeration with 10% less whipping agent.

Before leaving figure 2 it should be pointed out that the shape of the curve using a vegetable protein whipping agent shows that the longer the whipping is continued the greater the volume obtained. There are few who would wish to continue to whip for a total elapsed time of 25 minutes but as the curve indicates if you do whip that long you continue to get improved volume. In fact, if the whipping is continued out to 30 minutes even better volume is obtainable than at the 25 minute point. The vegetable proteins do not reach a peak and then drop off in volume. If there is no fat in the mixture, the longer the beating is continued the better is the volume. Of course, when fat is present, as when finishing a batch of nougat or fudge, the beating should be at very low speed and of short duration in order to prevent destruction of the air cells. This loss of volume by prolonged mixing when fat is present occurs regardless of the type of whipping agent employed. The rate of loss of air is the same with egg albumen as with vegetable proteins.

The effect of type of syrup on whip volume is further illustrated in Figure 3. The curve relates the volume of a standard whip to the per cent of invert syrup used in the formulation of 80% corn syrup—20% sucrose. It had a volume of 63 oz./gal. When 7½% invert syrup was present, the volume of whipped syrup increased to give 57 oz./gal. With 15% invert in the formula the weight further decreased to 53 oz./gal.

In connection with this series of tests it should be mentioned, too, that only one-half of the total amount of invert syrup was in the cold portion of the batch that was whipped prior to adding the bob. The other half was in the cooked bob. Had we put all of the invert syrup in the cold portion of the batch the improvement in volume would have been even greater.

This curve indicates quite clearly that for those that have invert syrup in a formulation it would be most advantageous to put this syrup in the fluff batch in order to obtain the greater aeration possible when this syrup is whipped.

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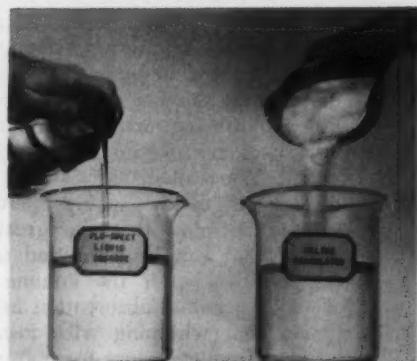
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Figure 3: Effect of invert syrup on whip volume
(vertical beater)

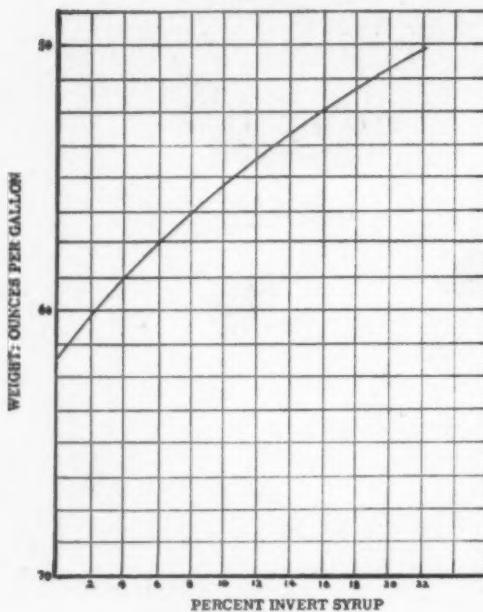
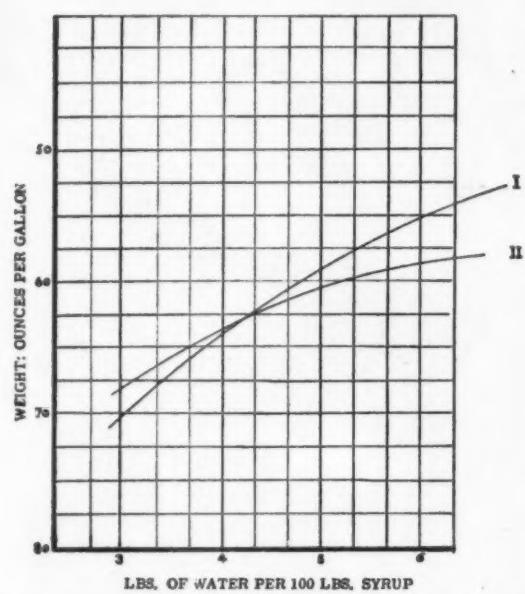


Figure 4: Whip volumes at different moisture contents
(G-4000V whipping protein in vertical beater)



Curve I—moisture content in finished batch varies with added water.

Curve II—moisture content in finished batch held constant by adjustment of temperature of cooked portion of batch.

(3) The Moisture Content of the Batch

The third factor which we gave earlier as having a part in the whip performance of vegetable proteins is the moisture content of the batch being whipped. It is certainly true that the ultimate liquid which will give the very highest amount of air entrapment when violently agitated with a whipping agent is pure water. If one stops for a moment to think about this I believe that your own observations will confirm it. Perhaps you have had occasion to add water to a beater after a whip has been withdrawn. If you have ever done this you know that by adding a quantity of water and starting the beater again the water will be whipped into a practically firm foam with but a very small percentage of whipping agent being present. We realize that a water whip is not suitable for any candy making operation but it is to be kept in mind that the greater the moisture content that can be permitted in a batch being whipped the better the volume will be. It has been our personal observation in a number of instances that whipping with insufficient water is the most frequent cause for poor volume. In figure 4 are two curves produced by whipping batches on a vertical beater. In one case (curve I) we varied the water added with the whipping agent, which you will recall, is put with the syrup. In this curve we varied the water that was added but kept the cook of the bob constant. In the other curve we varied the water as before but increased the cook of the bob to give a constant

moisture level in the finished frappe even though the water varied in the cold, or first, stage.

Looking first at the curve made by having a constant bob cooking temperature it is seen that when there is 1 1/2 parts of water to one part of whipping agent, which in this case gives three pounds of water to two pounds of whipping agent, the volume obtained by our standard whipping procedure with an 80-20 corn syrup-sucrose ratio is approximately 70 ounces per gallon. By increasing the water but three pounds per hundred of frappe to make water to whipping agent ratio 3 to 1 our volume improved to 55 ounces per gallon. Thus it can be seen that by merely increasing the moisture content of the batch being whipped by 3% we have increased the volume by 15 ounces per gallon.

On the other curve we find that by adjusting the cook to give constant moisture our 1 1/2 parts of water gave a volume of 68 ounces per gallon. By increasing this to 2 parts of water we increased the volume to 64 ounces per gallon. 2 1/2 parts of water gave 60 ounces per gallon whereas 3 parts of water gave 58 ounces per gallon. In this latter curve it should be made clear that the frappe moisture in every case was constant. We merely used a little more heat to boil off a pound or two of water per hundred and as a result we improved our volume by 10 ounces per gallon which is at least a 15% improvement. If we were to look at this improvement in another way, the

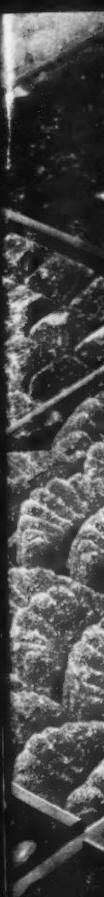
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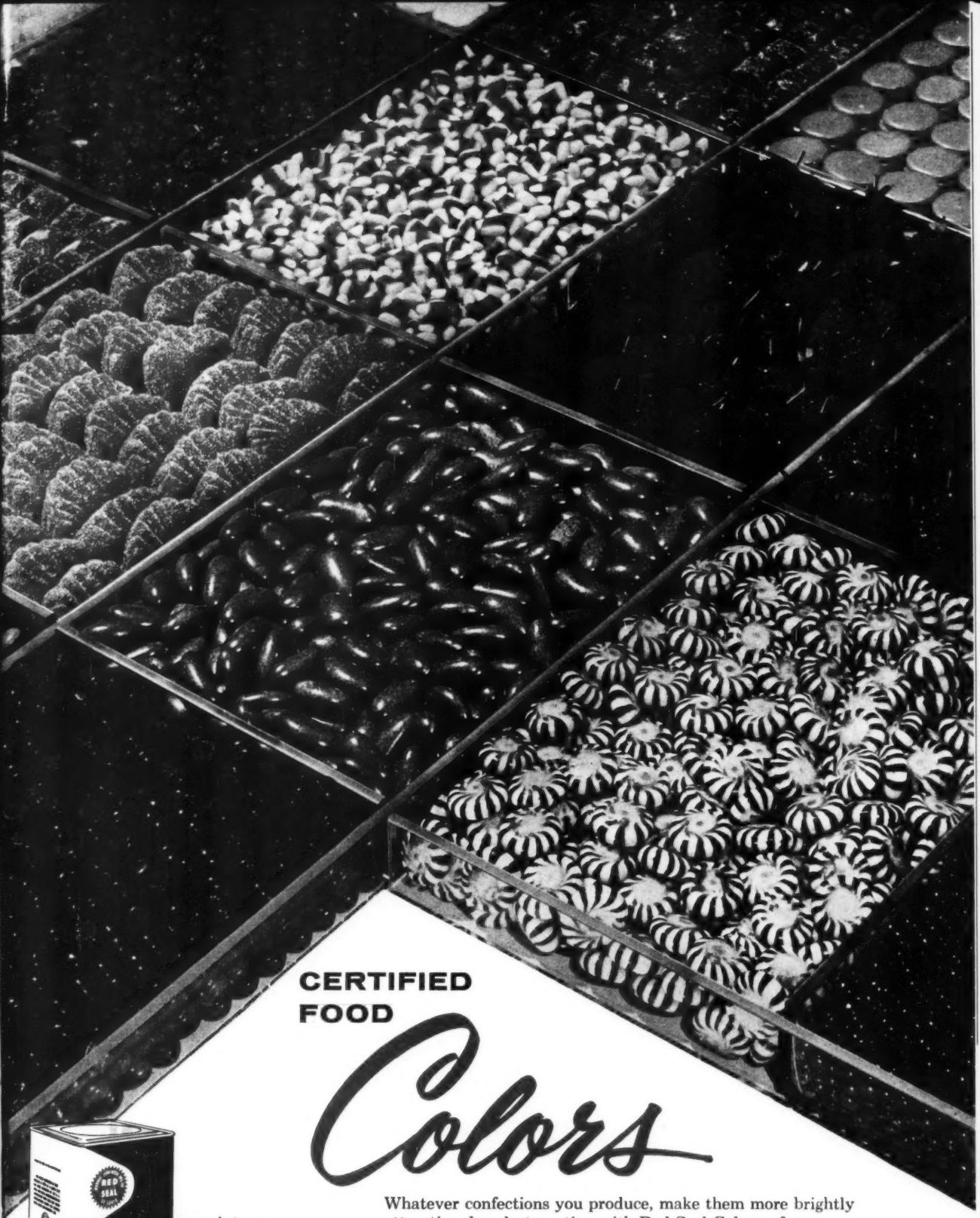
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value of the added water is even greater. Let us assume that we want to obtain a whip of 58 ounces per gallon using 1 1/2 parts of water. By the curve we see that 2% whipping agent with 1 1/2 parts of water gives 68.2 ounces per gallon. In order to obtain 58 ounces per gallon it would be necessary to use at least 3% whipping agent to get the same volume that 2% whipping agent gives with additional water being present in the first stage.

Now it does not necessarily follow that in every case one can use additional water in the whip and decrease the amount of whipping agent the full amount. Although doing so would give the desired volume, there are some other considerations which must be kept in mind. Among these are: (1) the amount of whipping agent required in the finished piece of candy, and, (2) the storage time of the frappe before use. If the piece is a chewy, non-grained nougat one must have a sufficient amount of whipping agent in the finished piece to give it good stand-up characteristics and shortness. The minimum amount that can be used with satisfactory results would have to be obtained by experimentation but it is safe to say that in many cases the amount of whipping agent could be reduced substantially if the whip volume is improved by a better procedure. And, the storage life of the frappe must be considered. If the frappe is used the same day that it is made the amount of whipping agent present can be at a minimum. However, if the frappe is stored, the whipping agent is required to keep the air cells finely dispersed and the formulation may require an additional amount of whipping agent, over and above that required for volume, to insure that the air dispersion remains stable.

To put it another way, the best use of the frappe is to put it into finished candy promptly after it is made. By doing so the amount of whipping agent required is kept at a minimum regardless of the type of whipping agent used. If frappe is stored at relatively high temperature for extended periods of time the amount of whipping agent must be greater than otherwise to provide stability against breakdown.

This answers in part at least the question "How much whipping agent should be used?" Use as little as possible to obtain the desired results with the composition and procedure that is employed. Naturally, it is to your advantage to use every means to improve your whipping results and to get the most out of the frappe once it is made. The above suggestions regarding syrup, moisture, etc. are along the line of how to get the most out of your whipping agent dollar. We have no more than touched on how to use the finished frappe to the best advantage, but we do wish to emphasize that the quicker it is used the better, and if it must be stored, store at the lowest possible temperature.

NCA Convention Pix

Conventioners:
Russ Cook of Ambrosia and Mr. Thorz
of Petzhold at the Amace booth.



Conventioners:
Ottie Windt, Stroud
Jordan Medal winner,
of Brach's with Ken
Guthrie of Gunther
Products.



Conventioner:
Ed Holland of Banta
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Factors in selecting water-soluble gums

N

natural water-soluble gums play an important role in many products as binders, thickeners, emulsifiers, stabilizers or film formers. These products are natural exudates from vegetation and are all soluble in water. Natural resins, on the other hand, are exudates from both vegetable and animal life and are not soluble in water but require another type of solvent.

The candy manufacturer has available for his use a number of natural gums, each with characteristics that fit it for specific purposes. Gums include arabic, locust bean, tragacanth, guar, and karaya. These natural gums are a unique class of products with properties that candy manufacturers have not been able to duplicate with other materials.

It is up to the confectionery manufacturer to select the best type, grade, and form of gum from the standpoints of economy, manufacturing performance, and quality of end product. Fortunately, he has been relieved of much of the responsibility by those leading gum suppliers who are equipped to import and process gums on a scientific basis. Scientific processing is vital because natural gums are products gathered for the most part from wild trees by unskilled labor, and they have varying characteristics in the raw imported state. While very large users may have agents at the country origin to inspect lots before shipment most confectionery manufacturers purchase through an importer. The importer processes the gums either in his own plant or by contractual arrangement to provide products with predictable and reproducible properties.

Leading suppliers can furnish gums of uniform quality at a relatively stable price and make valuable recommendations to the manufacturer. The

BY CHARLES M. FERRI
Morningstar-Paisley, Inc.

final choice, however, rests with the gum user, and he owes it to himself to consider several important factors when he is selecting a water-soluble gum for his products.

In an ideal situation, the confectionery manufacturer should determine closely the specific characteristics that are important to his products, and then set up specifications for his gum purchases on that basis. In actual practice, consultation between manufacturer and gum supplier after precise needs of the product have been determined yield the most workable specifications. Hereafter, specifications can be followed consistently by those gum suppliers who have an adequate grading and testing procedure. When the candy manufacturer purchases gums by specification, he eliminates all variability effects, and he will find that his production and confectionery products meet quantity and quality expectations.

Confectionery Applications of Gums

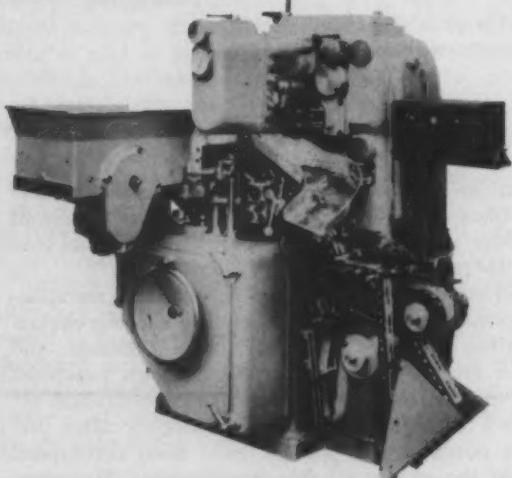
One of the major uses of gums is as a binder in such products as candy cigarettes and lozenges. In the cold press process, a small amount of powdered gum will act as a binder to hold the powdered sugar together. The gum binds firmly in this process because of the effects of pressing and the slight heat generated by the pressing action.

In extruded items, such as wafer sheets, a thick gum solution will allow a mass of powdered sugar to be extruded. After stamping and drying, the gum will remain as a binder. In this application, the gum often requires a plasticizer to prevent extreme brittleness under very low humidity conditions. For the most part, tragacanth or arabic are used as the binding agents.

In many low-moisture candies, gum emulsions



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serve as carriers of flavors. After the candy is dry, the gum will hold the flavor tightly until the candy is put into the mouth. This property of gums is also widely used in the fast-growing field of powdered flavors.

Among the natural gums, gum arabic is a unique product because of its very high solubility in water. While most water-soluble gums cannot form concentrations higher than 5%, gum arabic under ideal conditions will yield over a 50% solution. As a result, gum arabic will actually form a highly viscous gel-like consistency, which has all the characteristics of a strong starch-produced gel. In addition to this application, arabic is used alone and in combination with the other natural gums as thickeners and binders.

Locust bean gum is unique in its property of progressive thickening on standing over a period of weeks and months if properties of the original solution involved no heating. This property contrasts with the other gums, which gradually hydrolyze and lose their structure on standing. Thus, locust bean is often used in conjunction with other gums to stabilize binding strength on aging.

Gum tragacanth has the useful property of being highly resistant to hydrolysis by food acids. This characteristic is important in a number of candy applications, and therefore tragacanth is used as a thickener in certain cream centers containing natural fruits.

Guar gum meets the needs of specific applications because it is unusually soluble in cold water. It is useful for providing bodying action in a water solution when the material cannot be heated.

Karaya gum is a low-cost cold-water swelling gum, but is limited in its applications because it breaks down rapidly in the presence of acids.

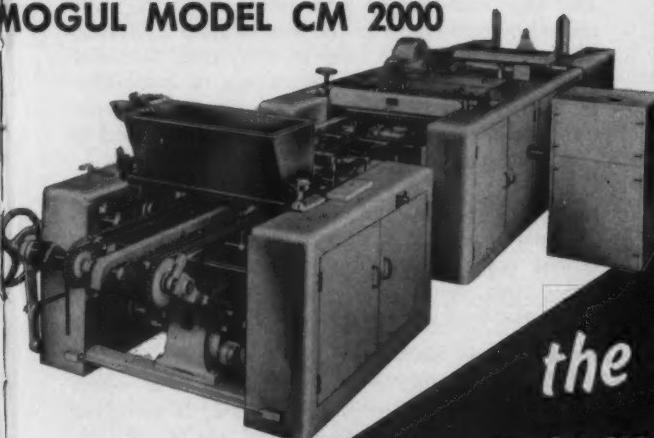
Function of Supplier

An important part of the supplier's responsibility lies in eliminating gum variation through proper sorting and classification. For example, seasonal variations will affect the properties of most water-soluble gums. If gum arabic is gathered during the late season (November through February), it will have different properties than the same gum gathered from March through June. In this case, the most important property change is bodying effect or viscosity. However, this variation does not necessarily mean that one of these types is superior. The properties of either type may be desirable for a specific use. The reliable supplier should have sufficient stocks of each type on hand to meet the demands of the user during all times of the year. Seasonal variations also may affect other gums, such as tragacanth, karaya, locust bean, and guar.

In addition to viscosity, other properties affected by seasonal variation include: color, insolubles and moisture content. Specific constituents such as metallic compounds and enzymes must often be taken into consideration by users who require uniformity

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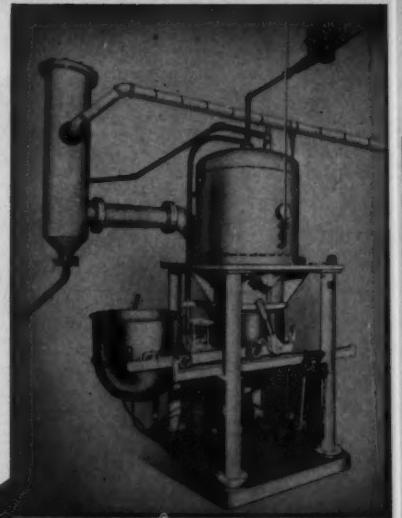
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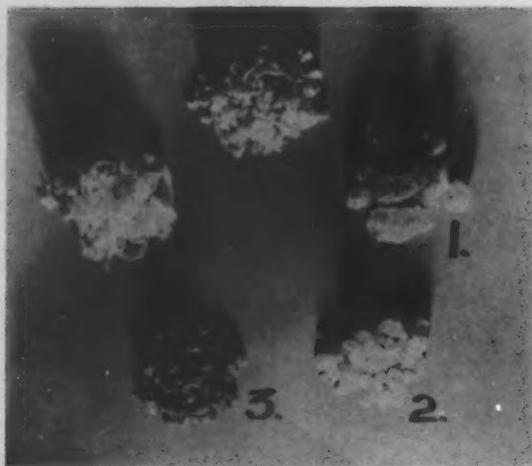


Figure 1. Unprocessed gums are a rare sight to the user, who usually needs the larger degree of control offered by processed gums. Raw gums shown above are: (1) Gum Arabic (Selected Series); (2) Gum Karaya (No. 1 WSGA); (3) Gum Karaya (No. 3 WSGA); (4) Gum Tragacanth (No. 1 Ribbons); and (5) Gum Tragacanth (No. 27 Flakes).

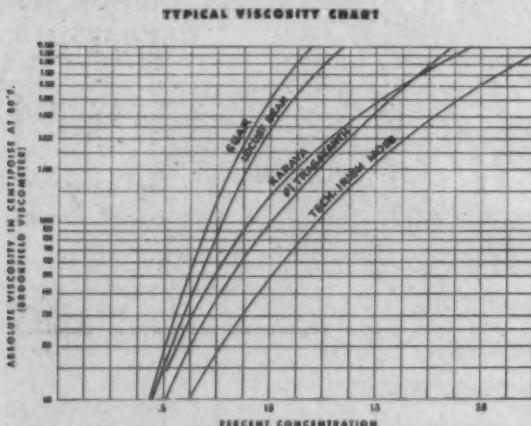


Figure 2. Chart shows typical viscosities of various gums according to percent concentration. Viscosity is a very important factor in the function of all gums except gum arabic.



Figure 3. Gum dust can cause a problem by settling on floors, equipment, and products. Problem and solution are illustrated above with two drums of gum arabic powder: fine powder (left) exhibits high degree of dusting, while coarser powder (right) produces very little dust under same conditions.

in certain chemical properties for some special reasons.

Reasonable stability of price constitutes another factor for which the gum supplier is responsible.

Gum Color

Color is an attribute that varies in importance depending upon the gum in question. For example, the color of grains or powders of equal mesh size are an indication of the purity of gum arabic and karaya. The lighter the color, the cleaner the gum. Regarding tragacanth, guar, and locust bean gums the darker powder usually has a lower viscosity. The color variations in gum arabic and karaya are caused by differences in the time of gum gathering. Those gums gathered close to, or during, the rainy season contain a higher percentage of insolubles. In guar, locust bean, and tragacanth, color variations are a result of the type of seed collected or exudation gathered.

In those end products where color is important, proper selection of either a powdered or granular material is necessary to insure the required color. With gum arabic, for example, a light, clear, amber color is better obtained with a granular than with a powdered gum.

Importance of Mesh Size

Mesh is another important factor with which the gum user should be concerned. It plays an important role in color, solubility, clarity of solution, and filtration characteristics of the finished product. The manufacturer should generally avoid the very fine mesh sizes, which usually yield darker solutions, and where some of the viscosity characteristics of the gum itself are destroyed.

When the user filters the solution, particularly when gum arabic is used, it is advantageous to use coarse meshes. These fast filtering types save time and cut labor costs. In some cases, it may be advantageous to use a top grade of powdered gum arabic, which contains as low as .04% insolubles and may be pure enough to eliminate entirely the need for filtration.

Choosing Whole or Processed Gums

The gum user also has the choice between a whole gum in lumps, flakes, or ribbons (Fig. 1) or a processed gum. A processed gum gives the user a much greater degree of control than is possible with a whole unprocessed gum. However, if the basic consideration is low cost that necessitates the use of an unprocessed gum, the manufacturer must make the following sacrifices: (1) limited standardization of end product, (2) relatively high percentage of impurities, (3) increased processing time.

Importance of Uniform Viscosity

Viscosity is an important factor in all gums except gum arabic (Fig. 2). Although there is justifiable stress on high viscosity gums at the lowest price, it is just as important to consider the factor of uniform viscosity. When the user has incorporated a certain type and grade of gum for a length of time, his formulation is finally adjusted

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to this particular grade. Uniformity of viscosity then assures the constant usefulness of the formulation. The manufacturer should strive to use a gum that produces the desired body at minimum concentration. At this point, it becomes the supplier's responsibility to furnish this particular gum within a narrow range of bodying limits.

Although the viscosities of different types of gums may be similar, flow characteristics may differ radically and impart significant changes to the finished product. For example, karaya will yield viscous solutions of either a ropy or short-flow type. Tragacanth, on the other hand, will produce viscous but smooth-flowing solutions. The end use of the product alone should determine the type of gum to use.

Gum Purity

Purity may be a very important consideration, depending upon the type of product in which the gum is incorporated. It is usually indicated by a low percentage of insolubles, and light color. Gum arabic and tragacanth are covered under U. S. Pharmacopeia requirements. Karaya is covered under National Formulary specifications. USP and NF specifications serve to protect the user by setting minimum standards. However, a reliable supplier will make every effort to furnish gums at standards well above the minimum for food products. For example, USP requirements for gum arabic call for a maximum of 1% insolubles content. However, it can be furnished with insolubles content as low as .03%. Another example is gum karaya, where the NF specification for insolubles content is 3% maximum. Certain grades of karaya can actually be supplied with insolubles content as low as 0.1%.

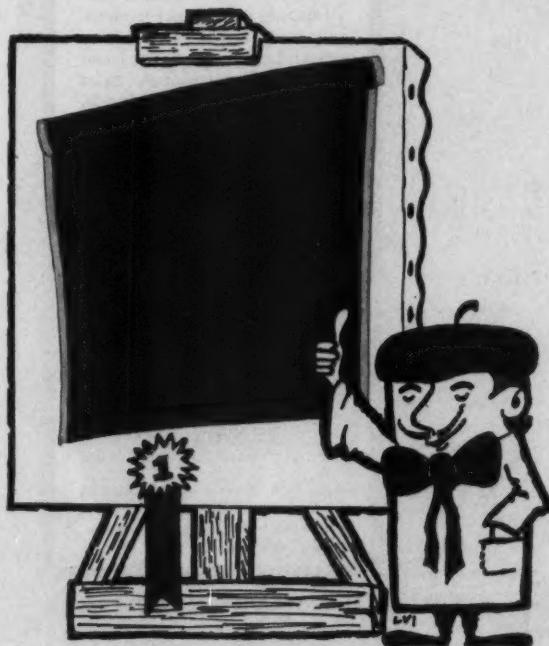
Dusting Problems

In some types of production, powdered gums may cause a difficult dusting problem. When a barrel of gum is dumped into a solution or process, the dispersed dust particles may seriously interfere with plant operations. Dusting can be minimized by the proper selection of mesh size of the gum (Fig. 3).

Custom Made Gums

The trend in the gum industry has been to prepare custom gums to fit specific industries, such as confectionery, flavoring, and ice cream. To derive the greatest amount of benefit, the gum user should maintain a close contact with the technical department of his supplier. For example, should the candy manufacturer make any changes in the ingredients contained in his product, he may require a change in the form of gum used. Those suppliers equipped with broad technological know-how and up-to-date equipment have been at the head of the custom gum trend. This trend in specialization has brought forth an improved line of water-soluble gum products which conform to the most exacting specifications of the food industries.

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With engineered design and precision construction, VOSS Satyn-Gloss Enrober Belting lasts up to three times longer than other enrober belts. Many major production plants depend on the smooth, durable, coated surface of Satyn-Gloss for long life and heavy service.

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Company _____

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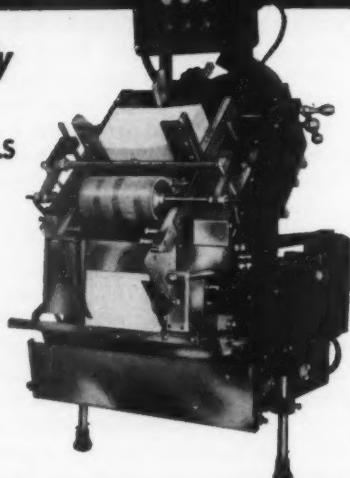
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LABELER

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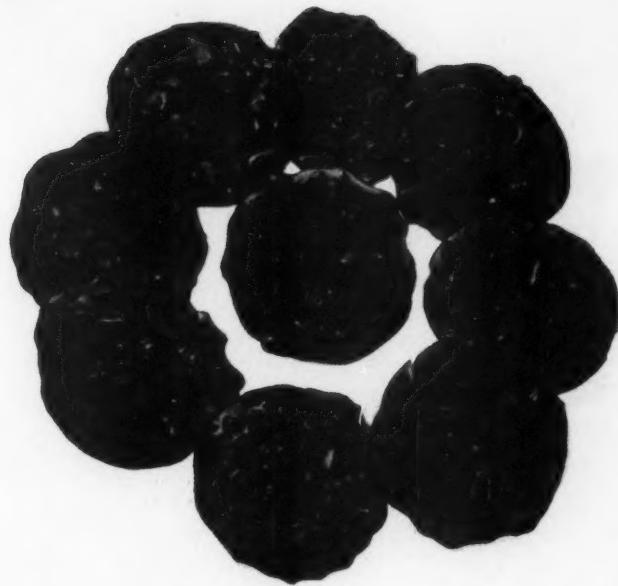
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Pralines

BY HERB KNETCHEL

Knechtel Laboratories

Formula:

10 lbs. sugar
4 lbs. light brown sugar
2 lbs. corn syrup
1 1/2 lbs. sweetened condensed milk
1/2 lb. butter
1/4 oz. salt
2 quarts water
Imitation maple flavoring to suit
3 to 4 lbs. pecans

Procedure:

Place brown sugar and water in kettle and heat to dissolve. Add butter and sugar, corn syrup and salt. Bring to boil and slowly add the sweetened

condensed milk. Cook to 237-238°F. Add the maple flavoring about one minute before end of cook. Remove from fire and let stand for ten minutes. Stir in desired amount of pecans.

Take out about one quart of the mixture in a sauce pan or dipper. Stir this, rubbing against the sides of the pan until grain appears or until the mixture becomes cloudy.

Spoon out in patties with ladle or large spoon on oil or silicone-treated paper.

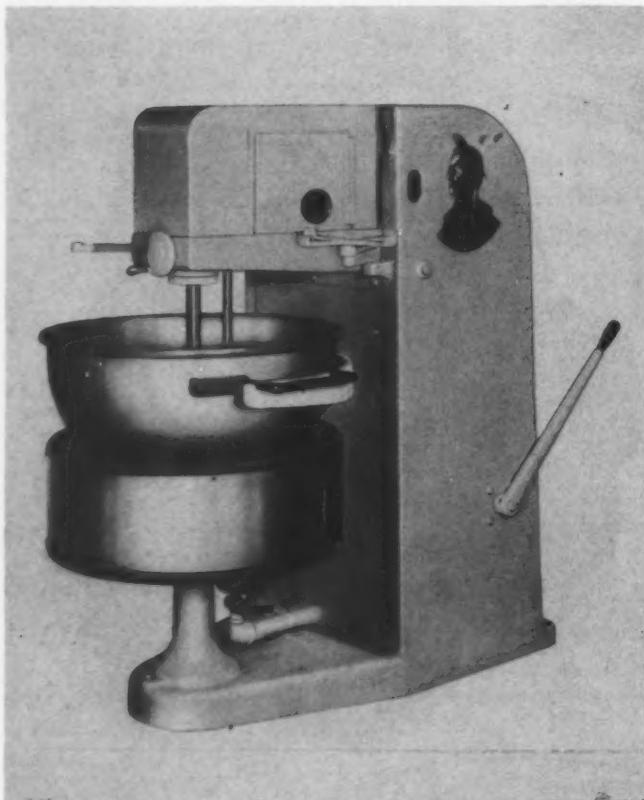
Refill pan and stir slightly. The small amount of grained syrup remaining in bottom and on sides of pan will act as a starter or seed and very little stirring is needed after the initial dipper full.

This is a basic praline formula which can be adjusted to fit almost any need.

SAVAGE LATEST FIRE MIXER

MODEL S-48

Thermostatic Gas Control—Variable Speed



The Savage Latest Fire Mixer, Model S-48, is Streamlined and Sanitary and has many new features and conveniences:

- Automatic Temperature Control
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- Break-back within floor space 32" x 48"
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- Atmospheric Gas Furnace with Stainless shell
- Removable Agitator, single or double action
- Stainless Cream Can and Stainless Drip Pan
- Copper Kettle 24" diameter 12½" deep or 16" deep

You can save labor and obtain uniform batches by setting the thermostat for degree cook desired. It cooks and mixes batches of caramel, peanut brittle, peanut candies, fudge, nougat, gum work, and with double action agitator is ideal for coconut candies and heavy batches.

Your inquiry invited

SAVAGE BROTHERS COMPANY

2638 Gladys Ave.

Chicago 12, Ill.

New Products

A free booklet entitled "100 Suggestions for Convention and Trade Show Exhibitors" is now available. A check list geared to help exhibitors remember details and avoid problems, the booklet contains suggestions on converting booth visits into sales. Pointers on show evaluation, cost factors, building, staffing, dismantling and shipping the booth, sales presentations and general exhibit planning are given.

For further information write: Manpower, Inc., 810 N. Plankinton Avenue, Milwaukee 3, Wisconsin.

A particle analysis service is available in the New York area for firms who want distribution curves (particle weight and size) on systems down to less than 0.5 microns. The scale of charges for analysis work is modest and accuracies of the order of 1% or better are usual.

For further information write: Interlab, Inc., 437 Fifth Avenue, New York 16, N. Y.

A machine which fills and seals 200 pouch packages per minute is now available. The new model offers high speed packaging in minimum floor-space by incorporating four filling tubes in a single unit. Four-seal or pillow packages can be made from printed or unprinted roll stock of most heat sealable materials and laminations. An electric-eye system assures positive positioning of package design by providing separate registration for each web.

For further information write: FMC Packaging Machinery Division, Stokes & Smith Plant, 4992 Summerdale Ave., Philadelphia 24, Pa.

A pamphlet giving recommended cellophane types for packaging a variety of candy as well as candy coated chewing gum, nuts and popcorn is available. Included are types best suited for direct wraps, for carton or tray wraps and for bags or pillow pouches.

For further information write: Market Development Dept., American Viscose Corp., 1617 Pennsylvania Blvd., Philadelphia 3, Pa.

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Strange Can Produce It!

Color is the first overture your product makes to a prospect. Is that color as inviting as it could be? Does your color help make as many sales as it should? Strange color technicians can *create* the color you desire . . . and produce it with

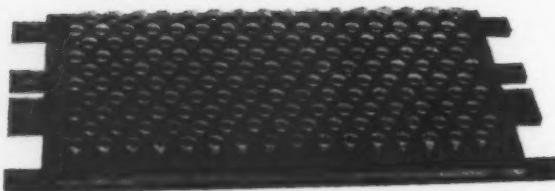
scientific precision each time you reorder. The Wm. J. Stange Co. Laboratories and Technical Staff will gladly assist you in capitalizing on all the stimulation that color can bring to your products. Consult your Strange representative or write:

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NEWSMAKERS

Du Pont has announced plans for the company's first major plant for the production of polyethylene film for packaging. The facility will be located for the most part in existing buildings in Richmond, Virginia, formerly used for rayon production. A 12,000 square foot addition to this building will be constructed.

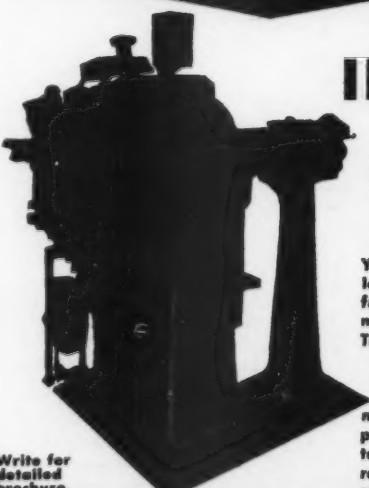
The Food and Drug Administration has made known that lactose is exempt from the clearance provisions of the Food Additives Amendment. They have stated that lactose is regarded as a common food ingredient and is generally recognized as safe.

Dr. Leonard F. Barrington has been named director of applications research for the A. E. Staley Manufacturing Company.

The domestic headquarters for ALVA and P&S flavors will be consolidated at the Elizabeth, New Jersey office of International Flavors & Fragrances, Inc. The company (which is the result of a merger of van Ameringen Haebler and Polak & Schwarz) will continue flavor manufacturing operations at Teterboro and Union Beach, New Jersey as well as at Elizabeth. The combined facilities at Elizabeth are expected to produce an expanded research program and improved manufacturing efficiency.

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The MANUFACTURING CONFECTIONER'S

Candy Clinic

The Candy Clinic is conducted by one of the most experienced superintendents in the candy industry. Some samples represent a bona-fide purchase in the retail market. Other samples have been submitted by manufacturers desiring this impartial criticism of their candies, thus availing themselves of this valuable service to our subscribers. Any one of these samples may be yours. This series of frank criticisms on well-known branded candies, together with the practical "prescriptions" of our clinical expert, are exclusive features of The MANUFACTURING CONFECTIONER.

Uncoated & Summer Coated Bars

Code 9D9

Caramel Peanut Nougat Bar
2 ozs.—5¢

(Purchased in a chain variety store,
Oak Park, Ill.)

Appearance of Bar: Good

Wrapper: Glassine wrapper printed in
purple, yellow and white.

Bar:

Coating: Light; Good

Center: A light chocolate nougat, layer
of caramel and peanuts.

Color: Good

Texture: Good

Taste: Good

Remarks: The best 5¢ bar of this kind
we have examined this year.

outside paper band printed in green,
red.

Pieces: Pieces are a molded summer
coating, one with cherry cream and
one with peppermint cream centers.

Coatings:

Colors: Good

Molding: Good

Centers:

Colors: Good

Texture: Good

Flavors: Good

Remarks: This is a new type of confection
and we wonder how it is going
to be accepted by the consumer. The
pieces are well made and good eating
but we have met only a few consumers
who like this type of coating.

Piece: Light coated panned caramel
drops.

Coating: Good

Center:

Color: Good

Texture: Good

Taste: Good

Remarks: A good eating piece; should
be a good seller at 5¢ for 1½ ozs.

Code 9F9

Iced Jellies
11 ozs.—29¢

(Purchased in a chain grocery store,
River Forest, Ill.)

Appearance of Package: Good for this
priced confection.

Container: Cellulose bag, paper clip on
top printed in red.

Jellies:

Icing: Good

Colors: Good

Texture: Good

Flavors: Fair

Remarks: One of the best iced jellies
at this price we have examined this
year.

Code 9H9

Mint & Cherry Rolls
1½ ozs.—10¢ each

(Purchased in a drug store,
Oak Park, Ill.)

Appearance of Roll: Good

Size: Good

Wrapper: Inside foil wrapper, white

Code 9E9

Caramel Bits
1¾ ozs.—5¢

(Purchased in a chain variety store,
Oak Park, Ill.)

Appearance of Package: Good

Container: Glassine paper tube printed
in yellow and red.

Code 9G9

Coconut Fudge Bar
1½ ozs.—5¢

(Purchased in a chain variety store,
Oak Park, Ill.)

Appearance of Bar: Good

Size: Good

Wrapper: Cellulose wrapper printed in
brown, pink and white. Imprint of
open coconut in color.

Bar:

Color: Good

Texture: Good

Coconut: Good

Taste: Good

Remarks: The best 5¢ coconut fudge
bar we have examined this year.
Well made and good eating.

Candy Clinic Schedule For the Year

JANUARY—Holiday Packages; Hard Candies

FEBRUARY—Chewy Candies; Caramels; Brittles

MARCH—Assorted Chocolates up to \$1.15

APRIL—\$1.20 and up Chocolates; Chocolate Bars

MAY—Easter Candies; Cordial Cherries

JUNE—Marshmallows; Fudge

AUGUST—Summer Candies

SEPTEMBER—Uncoated & Summer Coated Bars

OCTOBER—Salted Nuts; Gums & Jellies

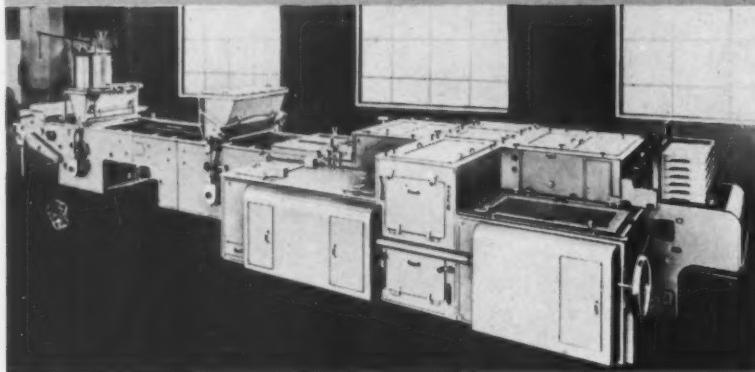
NOVEMBER—Panned Goods; 1¢ Pieces

DECEMBER—Best Packages and Items of Each Type Considered

During the Year.

The HELIOS STARCH MOLDING PLANT

sets the pace for
profitable candy-making



The HELIOS STARCH MOLDING PLANT, manufactured by Winkler & Dunnebier, of Germany, is available to the American Confectionery Industry through this Company. Lehmann's long experience as a pioneer manufacturer of chocolate refining and confectionery equipment qualifies this Concern to render all service required by customers using these ingeniously engineered machines.

The HELIOS STARCH MOLDING PLANT can be purchased as a complete installation or sections can be bought individually. Multi-color deposits can be made simultaneously, one on top of the other, or side-by-side.

These, and other features, make the HELIOS STARCH MOLDING PLANT a manufacturing unit of notable economy and quality of output.

Call or write for further information.



J. M. LEHMANN COMPANY, Inc.

550 NEW YORK AVENUE, LYNDHURST, N. J.

Code 9K9
Lemon (Ice) Rolls
Orange (Ice) Rolls
1½ ozs.—10¢ each

(Purchased in a drug store,
Oak Park, Ill.)

Appearance of Roll: Good
Wrapper: Inside wrapper of gold foil.
Outside paper band printed in yellow, green, red and white.

Piece: 10 pieces in roll. Piece is made in a mold, yellow colored summer coating. In the middle is a soft cream.
Color: Good
Texture: Good
Flavors: Good

Remarks: A very good eating piece. Should be good sellers.

Code 9L9
Dark Coated Peppermint
Cream Bar
1½ ozs.—5¢

(Purchased in a chain variety store,
Oak Park, Ill.)

Appearance of Bar: Poor
Size: Good for a 5¢ bar.

Bar:
Coating: Fair
Center:
Color: Good
Texture: See remarks
Taste: Good

Remarks: Suggest center formula be checked as cream had come through the coating. The wrapper was stuck tightly to the bar.

Code 9N9
Chewey Nougat Bar
1-1/16 ozs.—5¢

(Purchased in a chain drug store,
Chicago, Ill.)

Appearance of Bar: Good
Size: Good for a 5c seller.

Wrapper: Glassine wrapper printed in dark brown and white.

Bar:
Coating: Fair
Center:
Color: Good
Texture: Good
Taste: Fair

Remarks: Center lacked flavor.

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STAINLESS STEEL EQUIPMENT

STAINLESS STEEL DRUMS

MODEL 30--30 GAL.
MODEL 55--55 GAL.
(Covers available)

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Code 9I9
Milk Chocolate Bar
40 grams—15¢

(Sent in for analysis.)

Appearance of Bar: Good

Size: Small for a 15¢ chocolate bar.

Wrapper: Inside foil wrapper, outside paper band printed in buff, gold and blue.

Bar:

Milk Chocolate:

Color: Good

Molding: Good

Texture: Too hard for a good milk chocolate

Taste: Fair

Remarks: Bar is not up to the standard of milk chocolate bars made in the U.S.A. Taste and texture: We think some very high melting point fat has been used as chocolate is very hard.

Code 9J9
Milk Chocolate Raisin &
Filbert Bar
50 grams—15¢

(Sent in for analysis.)

Appearance of Bar: Good

Size: A little small for a 15¢ seller.

Wrapper: Inside paper backed foil, outside paper band printed in gold, orange, white and blue.

Bar:

Milk Chocolate: Good

Color: Good

Texture: Good

Molding: Good

Raisins: Good

Filberts: Good

Remarks: If this bar is going to be sold in the U.S.A. we suggest it be made larger and thinner to give it size. As it is, it is small looking for a 15¢ chocolate bar.

Code 9M9
1½ ozs.—5¢
Coconut Bar

(Purchased in a chain variety store,
Oak Park, Ill.)

Appearance of Bar: Good

Size: Good

Bar:

Coating: Dark: Fair

Center:

Color: Good

Texture: Good

Coconut: Good

Taste: Good

Remarks: Coating is not up to the standard of many other 5¢ bars on the market.

Code 9B9
Panned Chocolate Mints
½ ozs.—5¢

(Purchased in a drug store,
Oak Park, Ill.)

Appearance of Bar: Good

Size: Good

Container: Glassine tube printed in yellow, green, brown, red and white.

Piece: Piece is a small panned chocolate disc.

Colors: Good

Finish: Good

Panning: Good

Center:

Color: Good

Texture: Good

Flavor: Good

Remarks: A very good eating confection. Should be a good 5¢ seller.

Code 9C9
Chocolate Bar
40 grams—15¢

(Sent in for analysis.)

Appearance of Bar: Good

Size: Small for a 15¢ chocolate bar.

Wrapper: Inside foil wrapper, outside paper band printed in buff, gold and red.

Chocolate: Dark:

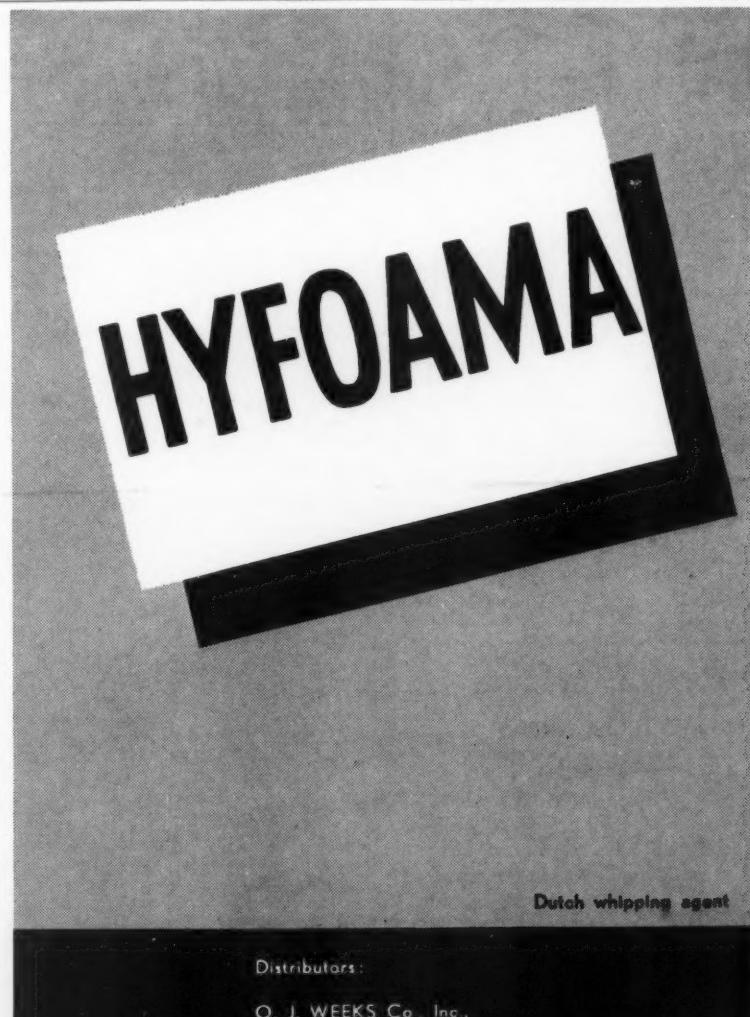
Color: Good

Molding: Good

Texture: Too hard

Taste: Fair

Remarks: Chocolate is not up to the standard of chocolate bars made in the U.S.A. Taste and texture: We think some very high melting point fat has been used as the chocolate is too hard.



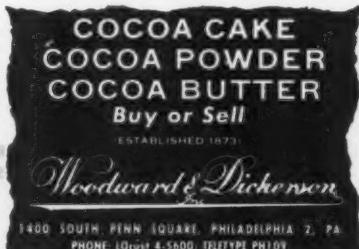
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Manufacturers: LENDERINK & Co. N.V., 20 Westerkade, Schiedam, Holland





THE MANUFACTURING CONFECTIONER'S CLEARING HOUSE

**Address replies to box number, c/o The Manufacturing Confectioner
418 N. Austin Blvd., Oak Park, Illinois**

MACHINERY FOR SALE

FOR SALE

Bonus Cluster Machine
Model S # 3 Savage Fire Mixers.
20 gal. & 50 gal. Model F-6 Savage
Tilting
Mixers, copper kettle.
200 lb. Savage Oval Top Marshmallow Beaters.
Cut-Rol Cream Center Machines.
Triumph Candy Depositor
Bostonian Friend Hand Roll Machine
50" two cylinder Werner Beater.
1000 lb. Werner Syrup Cooker.
150 lb. to 500 lb. Chocolate Melters
24" and 32" N.E. Enrobers.
Simplex Gas Vacuum Cooker.
Simplex Steam Vacuum Cooker.
Savage Cream Vacuum Cooker.
600 lb. Continuous Vacuum Cooker.
Form 3 Hildreth Pullers.
6' and 7' York Batch Rollers.
National Model AB Steel Mogul.
National Wood Starch Buck.
Bausman Twin Disc Refiner Unit.
Ball and Dayton Cream Beaters.
100 gal. Copper Mixing Kettle with
Double Action Agitator.
Hudson Sharp Wrapper Model
2W6-179
350 lb. cap. Resco chocolate melting and tempering kettle.
Savage and Racine Caramel Cutters
We guarantee completely rebuilt.

SAVAGE BROS. CO.
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CARVER COCOA PRESSES

Used current model 5-pot Verticals taken in trade on our horizontal machines. Carefully disassembled, inspected and reconditioned where necessary. Fully guaranteed by us, as the original manufacturer. Supplied as complete units with pumps, motors, spare parts, operating instructions, etc. Early delivery. Reasonably priced. Full particulars on request.

Fred S. Carver, Inc.
Chatham Road
Summit, New Jersey
U.S.A.

Groen steam-jacketed stainless steel pouring kettles, 125 gallon capacity, 20 lbs. steam pressure, 3/4 H.P. speed reducer motors—3 phase. Mounted on steel stands. In new condition. Box 9595, The MANUFACTURING CONFECTIONER.

Transwrap "A" with electric eye, twin tube volumetric; G. D. twist wrapper; Latinia supplementary steamer; Racine stick machine; Simplex gas fire cooker. Box 9592, The MANUFACTURING CONFECTIONER.

Carle & Montanari 4-stage sizer; PB Lynch wrapper with eye, magazine feed; Bausman quadruple chocolate grinding and mixing unit; Hohberger continuous cooker (2000 lbs/hr.); Hayssen 5-9 wrapper. Box 9593, The MANUFACTURING CONFECTIONER.

FA2-Q wrapper; Hayssen 7-17 wrapper; Racine EP sucker machine; Wrap-Ade pop wrapper; Simplex steam cooker; latest-type instant fondant machine; Werner twin cream beater with motor; Triangle triple-spout bag weigher. Box 9594, The MANUFACTURING CONFECTIONER.

For sale: Simplex gas-fired vacuum cooker; 3 ft., 4 ft., 5 ft. cream beaters; 50 to 300 lb. chocolate melters; gas stoves; cut roll cream center machines; pulling machines; York batch rollers; steam jacketed agitating kettles; water cooled slabs; marbles; Hobart & Reed vertical beaters; copper kettles; guillotine caramel cutting machine and other items. You will find it worth while to check our prices first. S. Z. Candy Machinery Co., 1140 N. American St., Philadelphia, Pa.

Racine junior (16") depositor with S.S. jacketed hopper. Like new condition. With or without 50 foot cooling tunnel. Smith automatic cream center forming machine with motor and dies. Racine type cast stainless steel 300# chocolate melter. Savage late style 110 gallon marshmallow beater. Box 9597, The MANUFACTURING CONFECTIONER.

LINES WANTED

Past 23 years representing Peter Paul, Sweets Co. of America, Smith Bros. Cough Drops, H. B. Reese Candy Co. in Chicago, Milwaukee and northern Illinois territory to all classes of trade who buy confections. Commission preferred. Les Netterstrom, 3315 N. New England Ave., Chicago 34, Ill. Kildare 5-8110.

SITUATION WANTED

Allround candymaker would like position in retail or small wholesale concern. Box 9591, The MANUFACTURING CONFECTIONER.

Esq. available to take charge of chewing gum base department and general candy pan line. To this I will add that I have my own formula for synthetic chichly gum base which took me five years of research work. Also I will go in foreign countries to teach all this. Box 1286, The MANUFACTURING CONFECTIONER.

HELP WANTED

Assistant Superintendent wanted by New England manufacturer. Fine opening for bright young man who has had production experience. State age, experience, salary desired and when available. Box 9596, The MANUFACTURING CONFECTIONER.

MISCELLANEOUS

Wanted: Broker to sell 5 and 10 cent bar line. Also Holiday, Staple and Specialty items. Paramount Candy Co., 502-16 Avenue, North, Clinton, Iowa.

WIRE FORMS: RACKS

WIRE DISPLAYS:

Made to Specifications

LOW PRICES WRITE

Fasform Wire Division

6171 Carnegie Ave. • Cleveland 3, Ohio

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Any kind of inedible cocoa residues, such as cocoa shells, cocoa dust, expeller cake, powder, coating, liquor, butter, or any fat-containing material.

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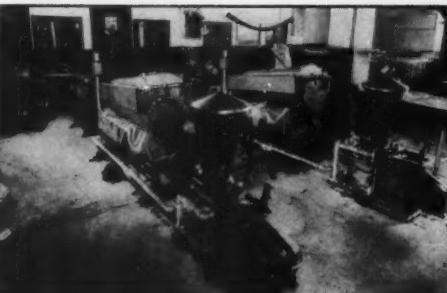
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1400 SOUTH PENN SQUARE, PHILADELPHIA 2, PA.
PHONE: LOcust 4-5400; TELETYPE PH109

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Hohberger 2,000 lb. capacity per hour High Production Vacuum Cooker with 2 Stainless Steel Pre-melting Kettles.

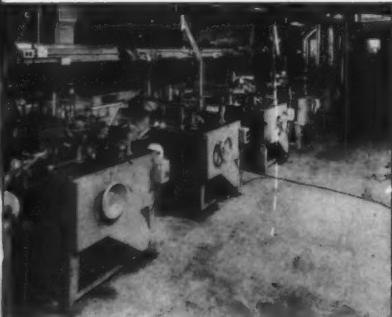


2—Hansella Plastic Filled Hard Candy Lines with Forgrove Liquid Center Filling Machines, Forgrove Automatic Batch Rollers, Hansella Automatic Continuous Plastic Presses and Multi Tier Cooling Conveyors.

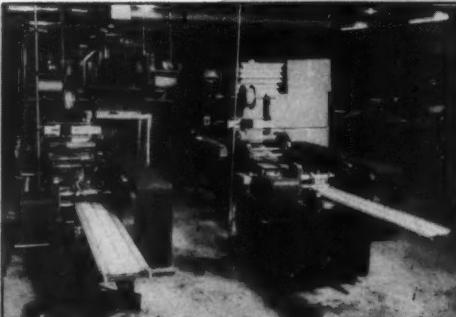


4 — Rose I. S. T. Hard Candy Twist Wrapping Machines.

HIGHLY DESIRABLE HARD CANDY MACHINERY for the production of WILTED HARD CANDY AND PACKAGING IN ROLLS direct from floors of very Efficient HARD CANDY PLANT Located in New York State



10 — Lowenstein Hard Candy Wax or Foil Fold Wrapping Machines.



2 — Hudson Sharp Campbell Model 2W10 Wrappers for overwrapping 10¢ rolls of hard candy.

*Act Now
For Choice
Selection*

WRITE . . . WIRE
PHONE COLLECT
for complete details
and prices and also, to
arrange to inspect this
equipment.

- All equipment was in operation until recently and is still set up in original position.
- Equipment was well maintained and is in excellent operating condition.
- Quantities are limited.
- These offerings are subject to prior sale.

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Chicago, Illinois
Seely 3-7845

Equipment
Priced Very Low
For Quick
Removal

INSPECTION
BY
APPOINTMENT

OTHER MACHINES AVAILABLE AT THIS PLANT

- 2—Hildreth Form 3 Pulling Machines with motors.
- 1—Savage 50 gal. capacity Patent Tilting Kettle.
- Klik-Lock forming heads for 3 oz. ginger boxes.
- 1—Holm Automatic Weighing Scale.
- 1—15 ton Air Conditioner.
- 1—5 ton Air Conditioner.
- 1—Miller Wrapper and Sheeter.
- 4—3 ft. x 8 ft. Steel Tables.
- 2—Lightning Mixers attached to Kettles.
- 2—5" wide x 24 ft. Candy Conveyors with motors.
- 2—Conveyor Units (overhead candy conveyors).
- 1—Hobart Grinding Machine.
- 17—Galvanized Steel Tubs.
- 5—Lengths Roller Conveyors and 4 stands.
- 1—Powered Conveyor with motor.

UNION

Rebuilt
Machinery

Established 1912





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From Kitchen to Consumer...

CONTROL COSTS...IMPROVE FLAVOR...QUALITY...UNIFORMITY ...APPEARANCE...with STALEY'S GUIDE TO BETTER CANDIES!

NAME OF PRODUCT	WHAT IT IS	WHAT IT DOES	WHERE YOU USE IT
Sweetose Syrup	The original dual-converted corn syrup; the preferred corn syrup sweetener and humectant for most candies.	Retains moisture, extends shelf life, makes candies more tender; controls graining; improves flavor; makes better candies at less cost.	In jellies, marshmallows, fudges, caramels, nougat, and most other candies except brittles and hard candies.
Staley's Intermediate Corn Syrup	A clear, bland corn syrup of higher sweetness, less viscosity, and greater hygroscopicity than "Regular."	Provides medium sweetness and body; controls graining; retards moisture loss.	In candies of medium chewiness in which some moisture control is desired.
Staley's Regular Corn Syrup	A slightly sweet low-conversion corn syrup of high clarity, bland flavor, and superior uniformity.	Produces candies of excellent flavor and reduced surface stickiness; controls graining.	In brittles, hard candies, and other products in which moisture is undesirable.
Sta-Sol Lecithin Concentrate	An emulsifier and antioxidant; a highly refined lecithin of natural soybean phosphatides.	Improves flow of coatings and texture of candies containing fats; prolongs shelf life; improves appearance; reduces costs.	In chocolate and compound coatings, and in any candy containing oil or fat.
Confectioner's Eclipse F Starch	A modified, thin-boiling starch which is colorless, odorless and bland in flavor; has medium-high fluidity.	Produces short, tender jellies of exceptional uniformity even under the most difficult cooking conditions.	In starch jellies in which uniformity is particularly a problem.
Confectioner's Eclipse G Starch	A modified thin-boiling starch which is colorless, odorless and bland in flavor; has high fluidity.	Produces superior jellies that are easier handling, more fluid at time of depositing.	In starch jellies for optimum tenderness and clarity.
Staley's Special Moulding Starch	A food-grade, powdered starch of minimum dustiness and maximum uniformity.	Developed especially to take and hold impressions well.	In preparation of starch trays for all types of candy moulding.
Staley's Pure Food Powdered Starch	A white, free-flowing, finely ground, thick-boiling starch of high purity.	Reduces packing of used moulding starch. Prevents sticking when used for dusting.	To replace moulding starch losses and for dusting of candies and work surfaces.
Staley's Confectioner's Dusting Starch	A fine, pure food powdered starch, especially treated to make it more free-flowing.	Gives better coverage with less sticking, reduces surface tension and facilitates handling.	For dusting candies and work surfaces.
COLORx Starch	Custom-made, finely ground, food-grade starch—uniformly tinted with FDA approved colors.	Adds desirable colors for dusting of colored candies.	For dusting colored marshmallows and other colored candies.

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Valley Fresh Angel-Whip—high quality dairy ingredient

Now—amazing
**WHIPPING
AGENT**
improves flavor
and shelf life

Give your nougat and marshmallow confections the extra creamy flavor and shelf life that insure a "better eating" product. Put pure, white Angel-Whip to work for you.

This 100% dairy ingredient is compatible to egg white, albumin, gelatine and other type whipping agents. It allows formula flexibility...makes aerated confection products shorter, more tender...improves keeping quality.

And Angel-Whip offers you this important extra: technical knowledge. At your disposal are the skill and experience of the world's largest whey products manufacturer.

Send for the facts and figures on Angel-Whip today. For confection bulletins and information on the many other Western food ingredients, write Technical Service, Department 15J.



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